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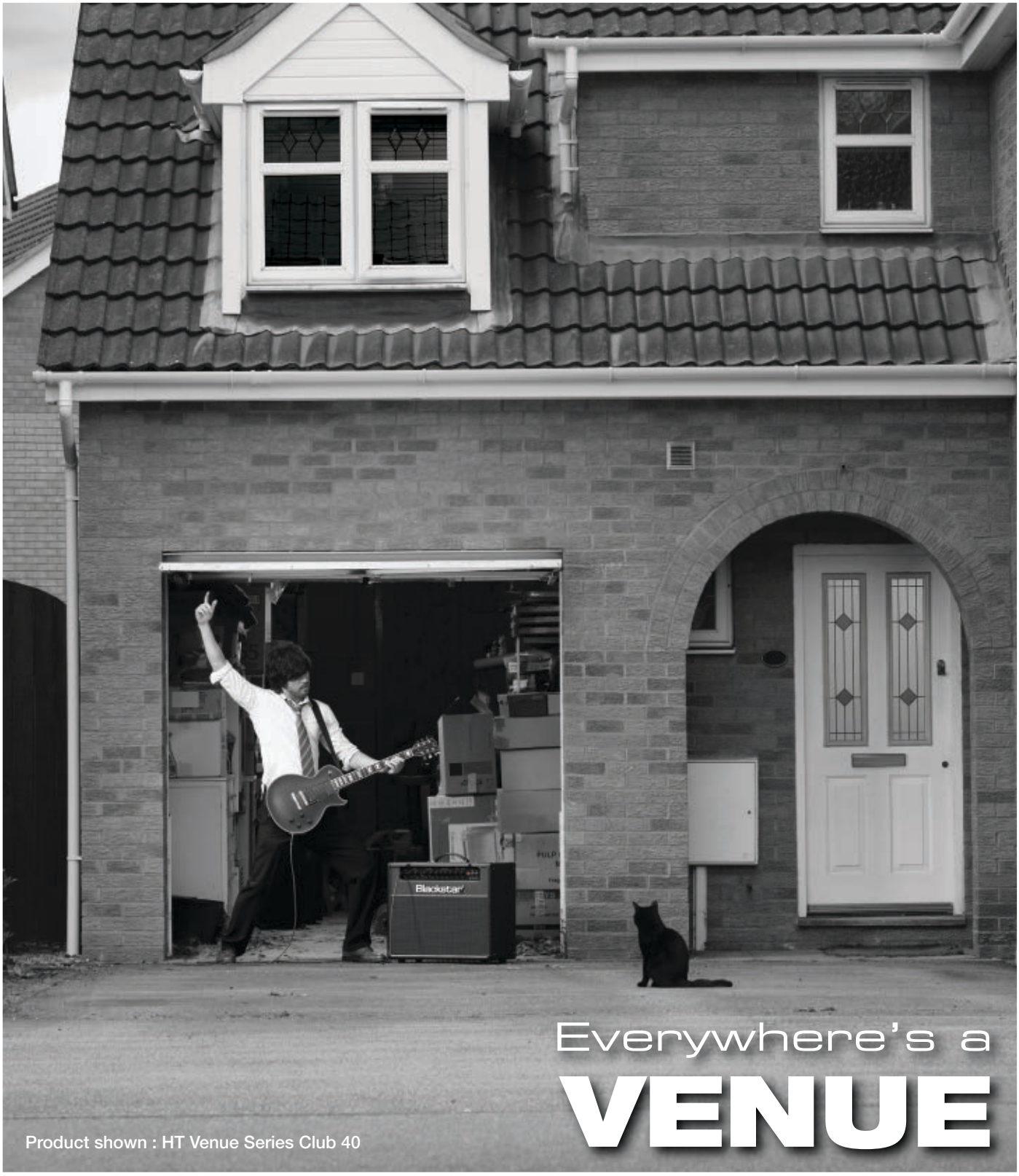

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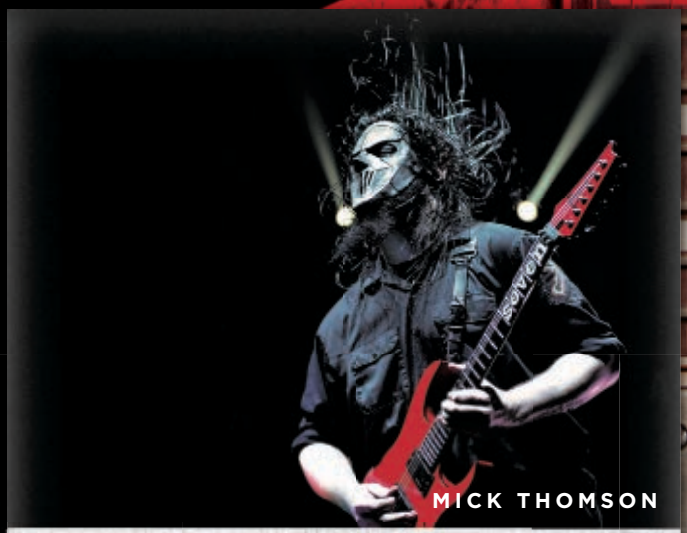
WHY CHANGE GUITAR PICKUPS?



MICK THOMSON

"A kid I went to junior high school with had a guitar with Duncan pickups, and it sounded infinitely better than whatever stock pickups were in the guitar I had at the time. I've always liked the sound of a passive pickup, but when it comes to doing what I do, the bottom end washes out too easily and it isn't tight. I love the upper harmonics and the richness of passive pickups, but with high gain at really high speeds, you can lose articulation sometimes, and that's why I always liked active pickups for what I do."

SLASH

"Something people don't know about my introduction to Seymour Duncan is that I worked in a music store in the early '80s, right before I started a band with the guys in Guns N' Roses. I learned about most of the popular brands of pickups at that time. From working in a music store and having them replace pickups all the time, I discovered that Seymour Duncan made the best pickups. So when I got the Les Paul with the Seymour Duncans in it, I knew that those pickups were going to be killer."

One of the most important elements shaping your tone lies underneath your strings. Do you find yourself searching in vain for that deep, melt-your-face distortion or those blistering, powerful leads? Or maybe you're looking for a sweeter, warmer tone? In each case, pickups are the keys that unlock those sounds.

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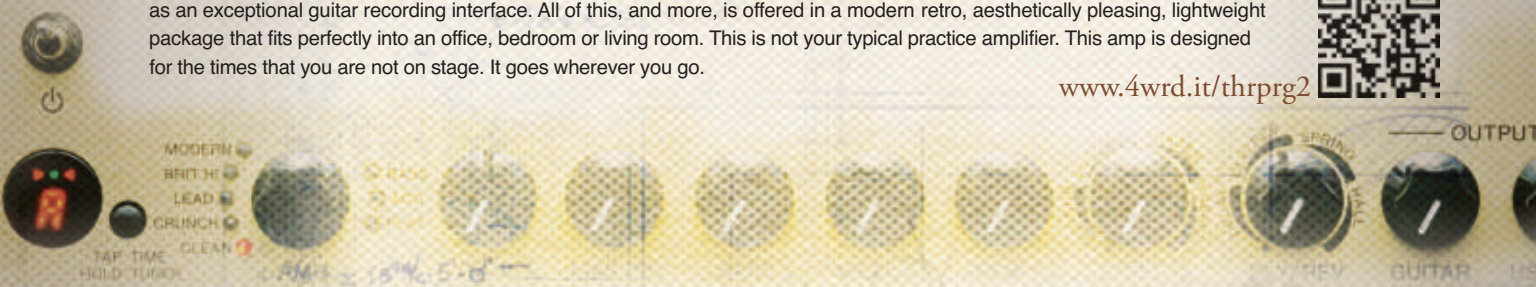

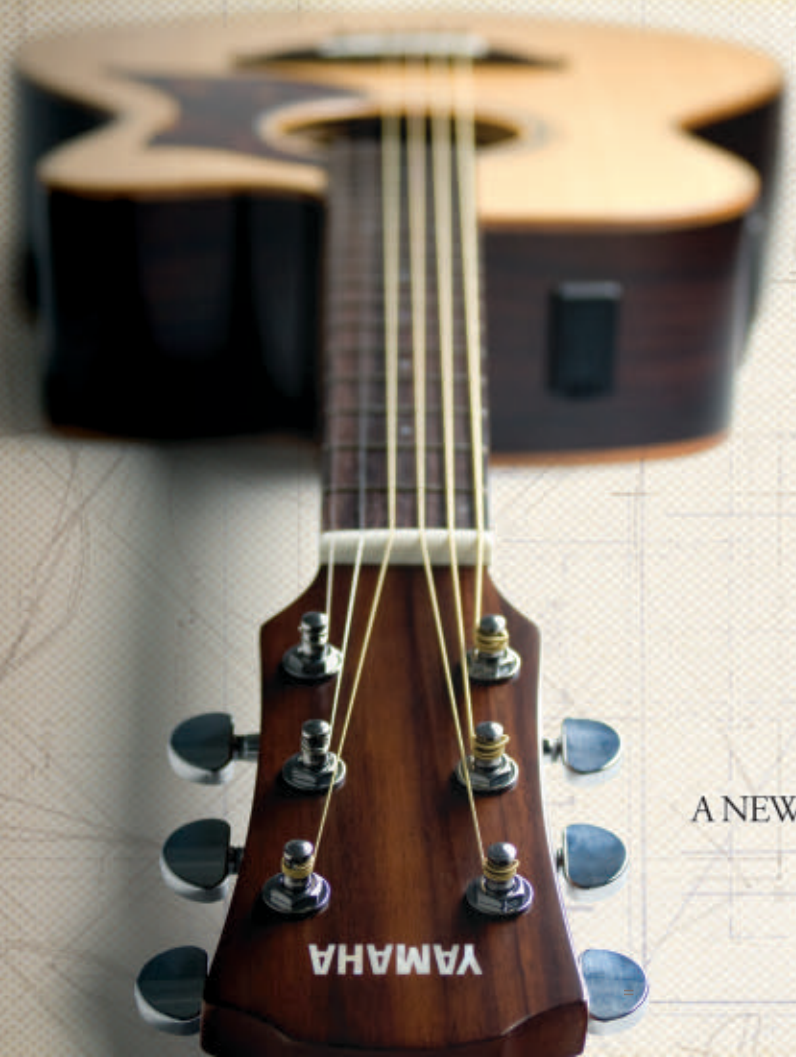

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The Phone Survey According to "Steve"

BY SHAWN HAMMOND

When I was 17, I worked at the Wirthlin Group in Orem, Utah, as a telephone surveyor. A bunch of bored-out-of-our-mind teens and I sat at computers that automatically called numbers all over the country, and when someone picked up the line we recited a script that typically sent people into a profanity-riddled rage and/or made them slam the receiver down.

> *Hi, this is _____ with the Wirthlin Group. Today we're conducting a short survey on _____, and we were wondering if you could answer a few questions … .*

One of the few ways I found to combat boredom at "the Worthless Group"—other than chatting about Zeppelin and Stevie Ray Vaughan with my pals Loa and Lupe between calls—was to use pseudonyms during that opening script. Don't ask me why that made a difference to my summer-job doldrums, but it did. I guess the thought that I was putting one over on people who usually treated me like I'd just barged in on a make-out session was somehow cathartic—a subtle "Oh yeah, you think *I* annoy *you*? Well I just lied to your *face*!"

Yes, 17 is a mature age.

I was pretty deep in my shred phase at the time, so my main go-to persona was "Steve Vai." I think I settled on being Vai as much for my guitar-nerdness as for the fact that I thought it sounded believable—Steve is an all-American and totally mundane-sounding name. It didn't dawn on me at the time that people probably thought the teen voice on the other end was a prankster calling himself "Steve Eye." That would explain a lot of the swearing and hang-ups.

The only time someone caught on to my ruse, though, it actually almost worked out in my favor and netted me a respondent.

> *Hi, this is Steve Vai with the Wirthlin Group … we were wondering if you could answer a few questions …*
>
> *Steve Vai, huh? Can I have some guitar lessons?*
>
> *[Nervous laughter on my end.]*
>
> *Uh, sure—if you take the survey.*

Even back in 1986, when Vai was first getting attention for his new gig with David Lee Roth and his appearance in the blues fable *Crossroads*, his unfettered creativity and uncanny fluidity was in clear evidence.

Alas, the bastard was too young to answer whatever lame-ass questions I was going on about anyway.

The man gracing our cover this month got a kick out of this story years later when I shared it with him during an interview. I was out of my shred-centric phase by then, but one thing has always stuck with me about the dude who wowed me back in 1986 as Satan's axe slinger in *Crossroads*: As proven by his live performances *and* the unflappable singularity of his recorded music, few players in any genre have a relationship with their instrument that's as seamlessly symbiotic as Vai's.

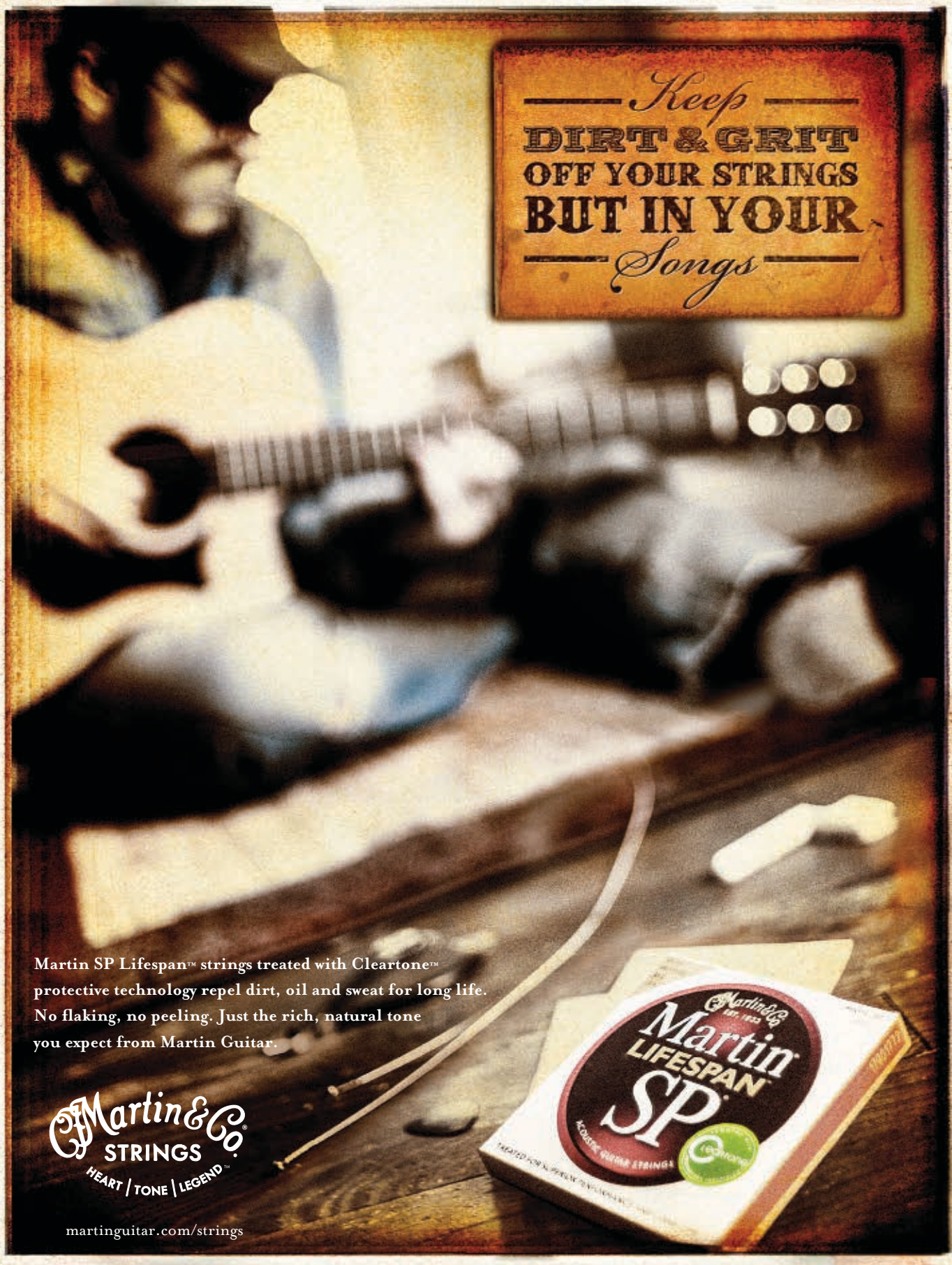
Back in 1996, a few years after I'd moved on from idolizing Vai to a multi-year phase during which I worshipped at the altar of Eric Johnson, I purchased the *G3 Live in Concert* [cringe] VHS tape of the first G3 tour, which featured tour founder Joe Satriani, Vai, and Johnson. Though I still had tons of respect for Satriani and Vai, I bought the tape for EJ. But I'll never forget how, after watching the whole thing through, what struck me more than anything was how Vai was one with his guitar—they were like a single organism. I was reminded of that again when I watched 2009's *Where the Wild Things Are* DVD in preparation for our interview. The guy and his Ibanez Jems are the freaking Penn & Teller of guitardom!

Regardless of how you feel about Vai's genre, tones, former bosses, etc., I think that oneness with your art and medium is something we should all aspire to. It's not about chops or gear or trends. It's about knowing who you are and what you want as a musician, and then sticking to your vision and your artistic aesthetic no matter what anyone outside your creative circle thinks.

Our interview with Mr. Vai this month provides plenty of evidence of his musical steadfastness, but we've got a lot more where that came from. When you're done here, click to premierguitar.com to watch two exclusive *PG* videos that give you an unprecedented look at what makes him tick. One is an in-depth Rig Rundown detailing the setup he's taking on tour in support of *The Story of Light* this year, and the other is an engrossing, behind-the-scenes peek at his Harmony Hut studio—which is stocked to the rafters with something like 230 incredible guitars, a $120k set of monitors, and tons of high-end vintage recording gear.

See you online!

Shawn Hammond
shawn@premierguitar.com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adjective

1. of, pertaining to, or being above or beyond what is natural; unexplainable by natural law or phenomena; abnormal.

2. of, pertaining to, characteristic of, or attributed to God or a deity.

3. of, pertaining to, or attributed to ghosts, goblins, or other unearthly beings; eerie; occult.

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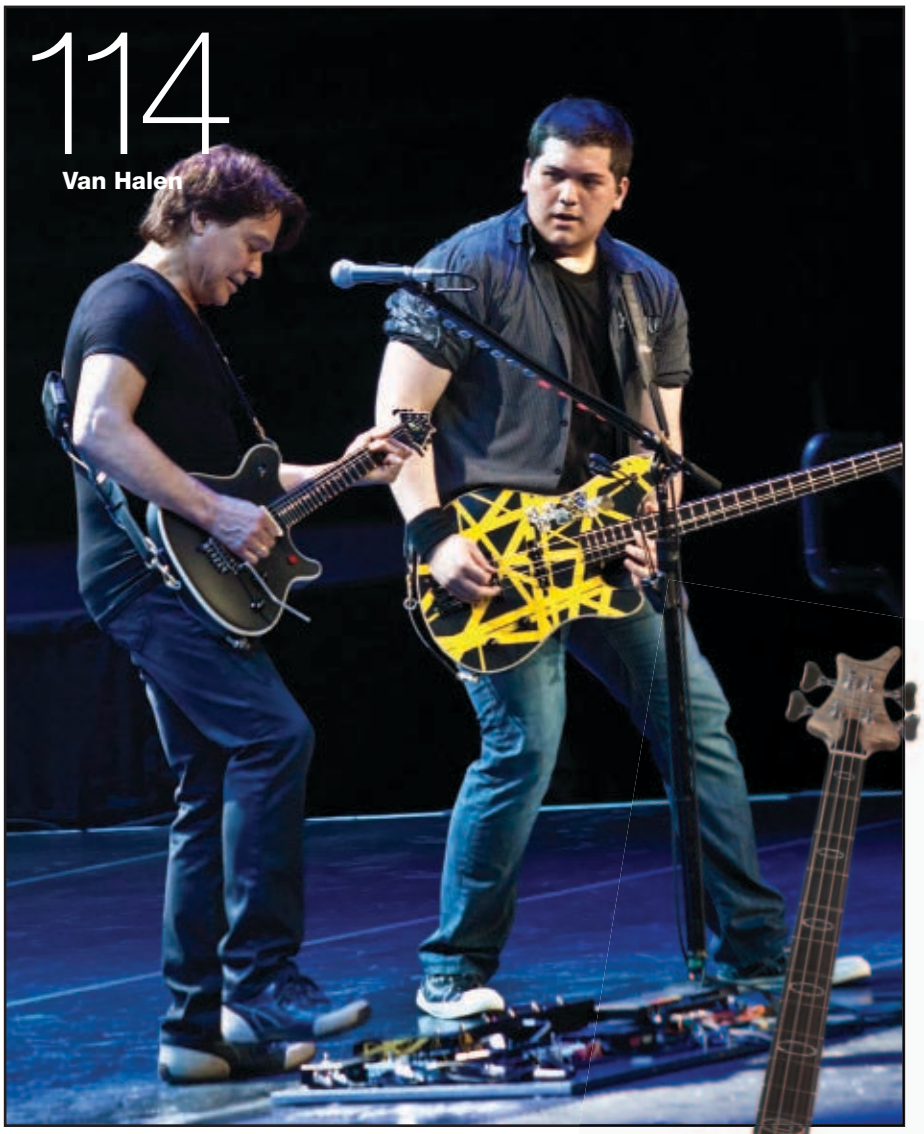

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Photo by Chris Kies

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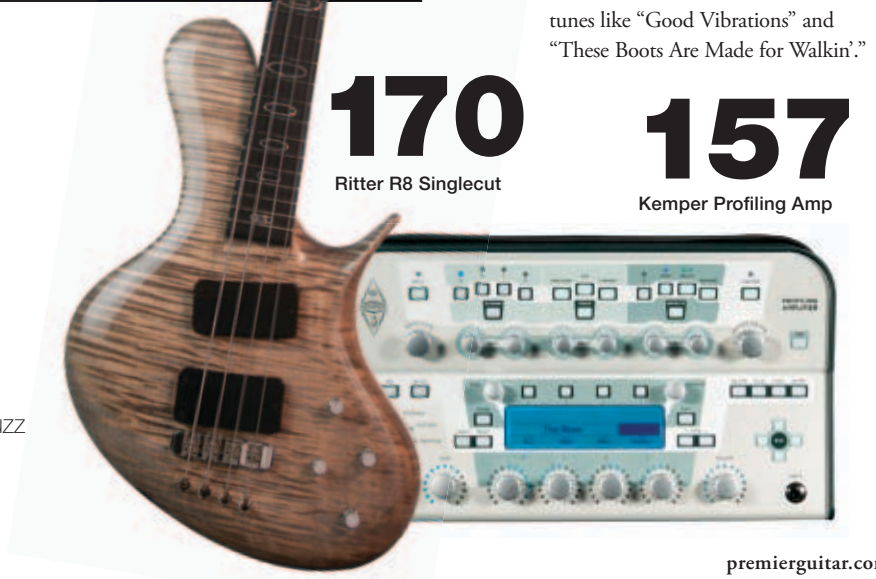

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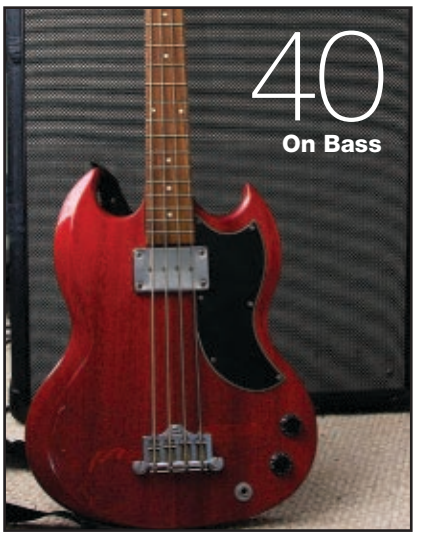

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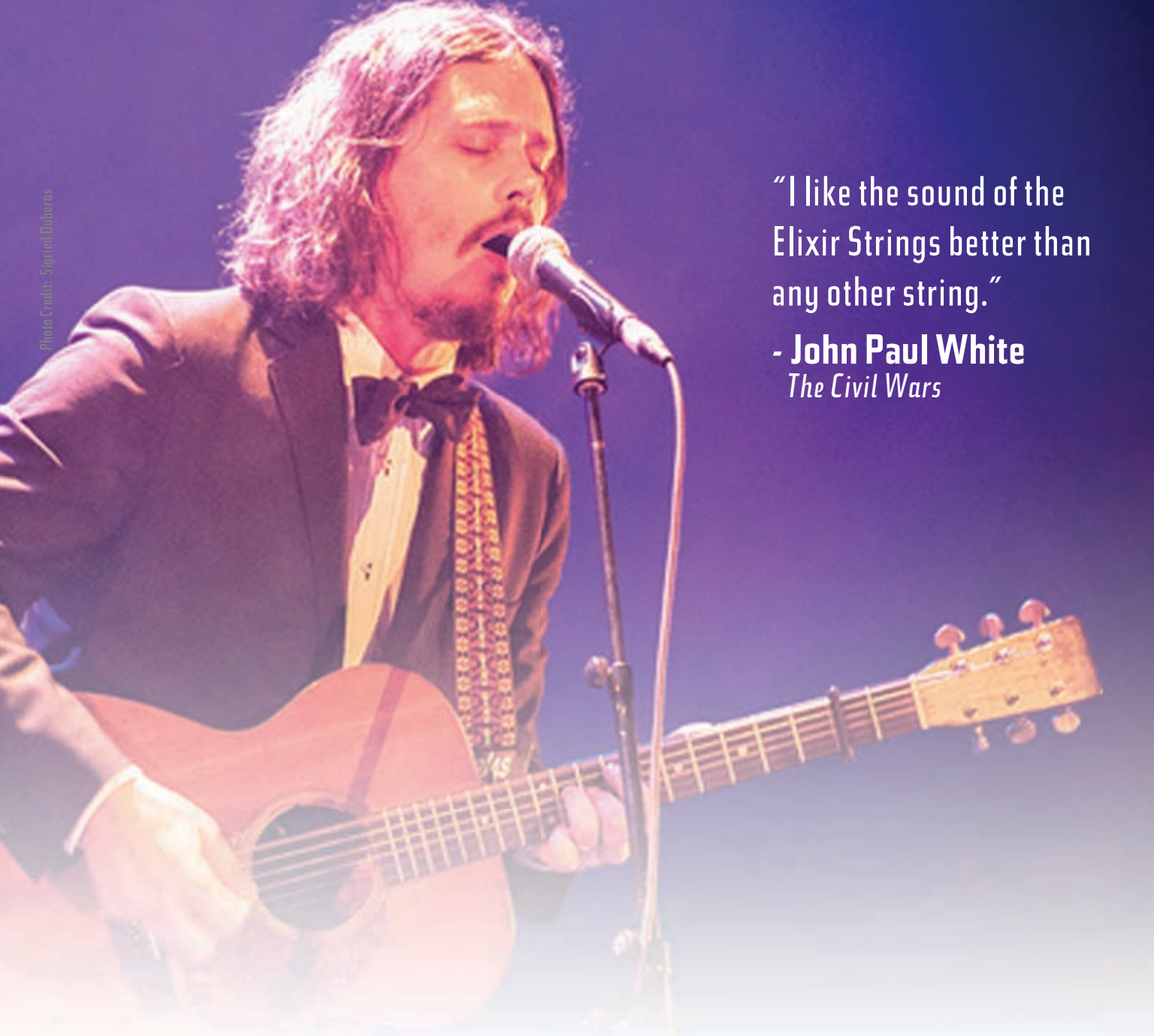

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This month on PremierGuitar.com...

Inside the Studio with Steve Vai

Vai himself gives us an exclusive tour of his L.A. home studio, the Harmony Hut, showing us the console, plug-ins, and vintage effects he used to record *The Story of Light*. Then we check out his guitar collection and he tells us which instruments he's using on the road and why in our Rig Rundown.

Online now! Search for: "Rig Rundown Steve Vai" and "Studio Tour Steve Vai"

ALSO!

Gear Gallery

Check out photos of all of Vai's guitars and from around his studio.

Cop Vai's Style

This comprehensive lesson examines some of the hallmarks of the master.

Online-Only Gear Reviews

Looking for a new-old favorite? We take Fender's Select Series Strat and Gibson's 2012 Les Paul Studio for a test-drive online this month. Plus, we get our hands on two sub-$1000 boutique amp heads from new company Hovercraft Amps—stoner rock fans take note.

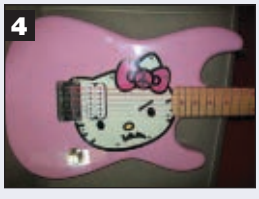
Online Now!

ONLY ON FACEBOOK...

Head to **facebook.com/premierguitar**, Like us, and click on the "Fans Only" tab for exclusive access to all of this and more.

FACEBOOK FAN PHOTOS OF THE MONTH

We've got quite the group of modders, builders, and all around hot-rodders among our 200,000 Facebook friends. Send your hot-rod pics in to rebecca@premierguitar.com or post on our Facebook wall for inclusion in our Reader Hot Rods gallery. Here's a sampling of pics submitted so far via Facebook.



1. Tom Kearney stripped the finish from his purple sparkle Ibanez SCA-220 and added 20 coats of Tru-Oil to bring out the grain of the natural mahogany. He also swapped in Seymour Duncan JB and Jazz pickups with a Super Switch and re-profiled the headstock with a quilted-sapele veneer.
2. Tyler Fitz constructed this Eddie tribute to be a mix of his original Frankenstrat and the later 5150 Kramer. The body was a thrift store find for $20, and from there he added a Musikraft neck, Porter Pickups Classic humbucker and functional neck pickup of unknown origin, Floyd Rose Special trem, Emerson Custom Guitars wiring harness and switch, and Schaller locking tuners.
3. Jason Michael Owens customized his Strat with a trio of DiMarzio Chopper pickups, 500k CTS master volume and push-pull tone pot, and a switch for splitting the neck pickup.
4. James Catalan modified his Hello Kitty Squier Strat into the "Bad Kitty," adding a bone nut, DiMarzio Steve's Special, and pink DR NEON strings. He plans to add a concentric volume/tone pot and 5-way rotary switch next.

New Rig Rundowns

Every week we take you backstage with a new artist, and August was no exception! Head online to see our latest:

Unknown Hinson

There are Reverends, Fender amps, and "womerns" aplenty in this entertaining interview.
Online now! Search for: Rig Rundown Unknown Hinson

Sonny Landreth

See what the slide master uses on the road.
Online Now! Search for: Rig Rundown Sonny Landreth

Aerosmith

Gearhead extraordinaire Brad Whitford gives a tour of his own rig while Joe Perry's tech, Trace Foster, goes in depth with Perry's gear.
Online August 29. Search for: Rig Rundown Aerosmith

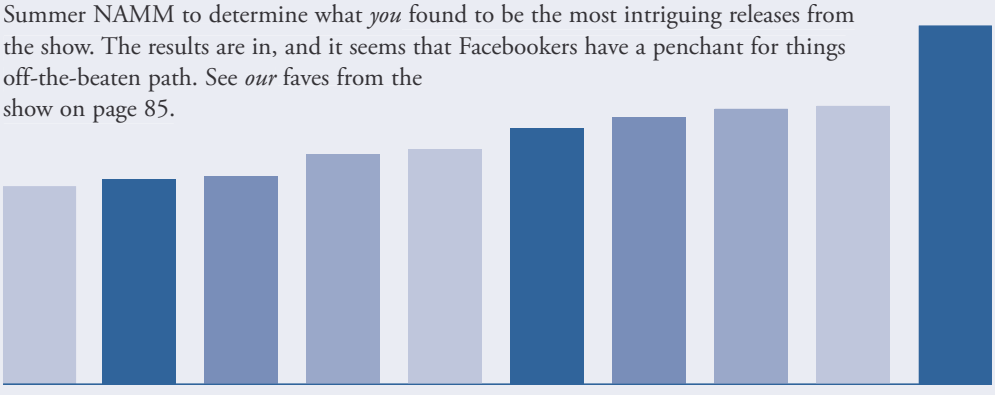
Show Us Your Pedalboards!

Our highly anticipated annual pedal issue is coming next month and, as always, we'll feature photo galleries of *our* boards online. So get your board in tip-top shape, snap a photo, and send it and a caption about it to rebecca@premierguitar.com, or post it on our Facebook wall at facebook.com/premierguitar for inclusion.
Deadline: September 10.

POLL OF THE MONTH

Summer NAMM Favorites

We (very scientifically) analyzed the statistics on all of our 88 photos posted from Summer NAMM to determine what *you* found to be the most intriguing releases from the show. The results are in, and it seems that Facebookers have a penchant for things off-the-beaten path. See *our* faves from the show on page 85.



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August 29-September 4

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BOB BABBITT
1937–2012

Photo by Dave Probst
Photo courtesy of Phil Jones Pure Sound

Celebrated bassist Bob Babbitt (born November 26, 1937) passed away July 16 in Nashville following a long battle with brain cancer. Best known for his work with the legendary Motown studio band the Funk Brothers, the Grammy Lifetime Achievement Award winner supplied the low end for more than 200 Top 40 hits. From "Rubber Band Man" to "Midnight Train to Georgia" to "The Tears of a Clown," Babbitt's bass lines and musicality constitued an immense contribution to popular music that will live on forever.

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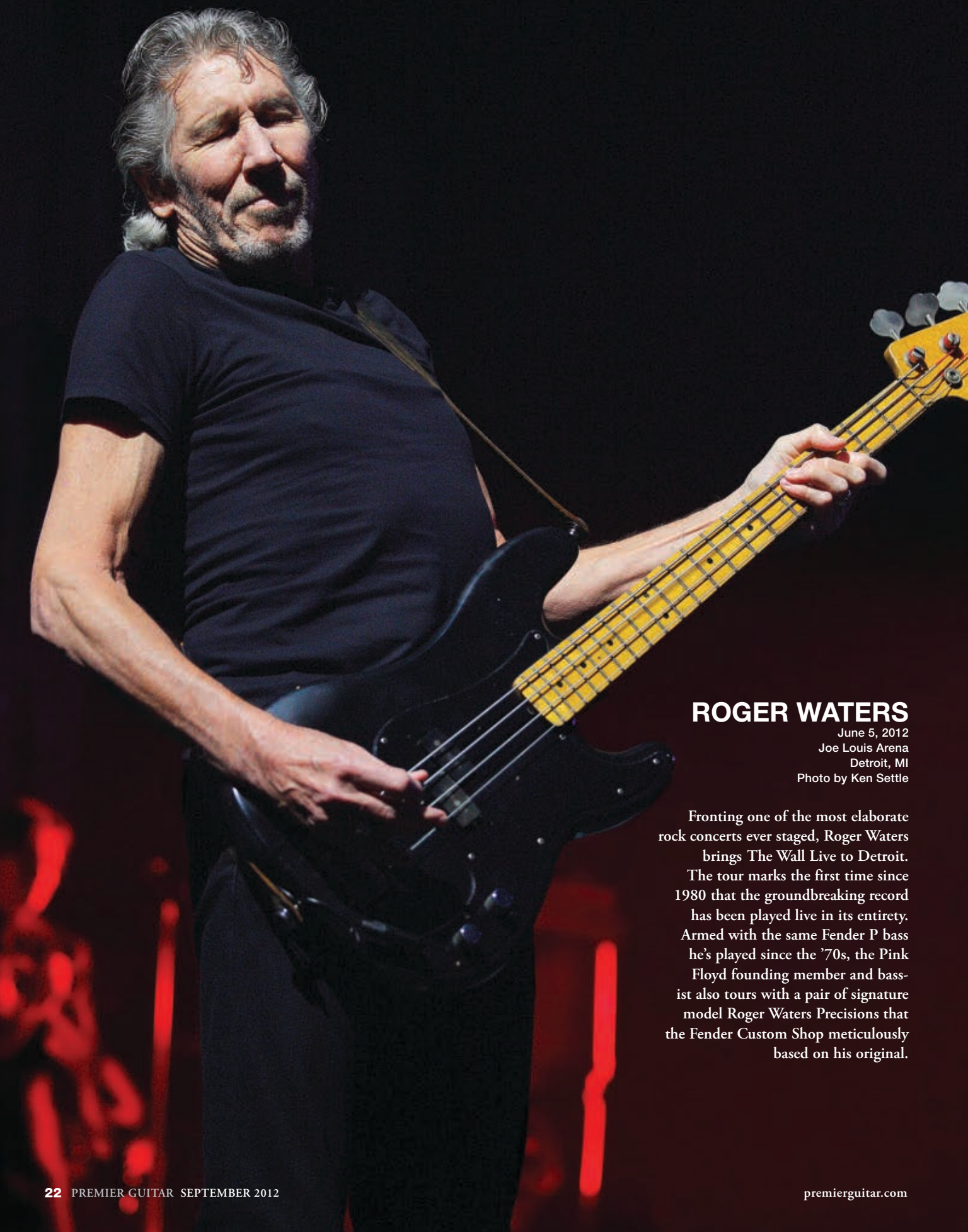
Ottawa, Ontario
Photo by Darren Boucher

On the opening night of Ottawa's massive 12-day music showcase, Grace Potter and the Nocturnals get the party started with their high-energy blend of blues, rock, and soul. Here, Potter dons her just-released, art-deco-vibed signature Gibson Flying V, which is outfitted with a pair of Burstbucker Pros.



ROGER WATERS

June 5, 2012
Joe Louis Arena
Detroit, MI
Photo by Ken Settle

Fronting one of the most elaborate rock concerts ever staged, Roger Waters brings The Wall Live to Detroit. The tour marks the first time since 1980 that the groundbreaking record has been played live in its entirety. Armed with the same Fender P bass he's played since the '70s, the Pink Floyd founding member and bassist also tours with a pair of signature model Roger Waters Precisions that the Fender Custom Shop meticulously based on his original.

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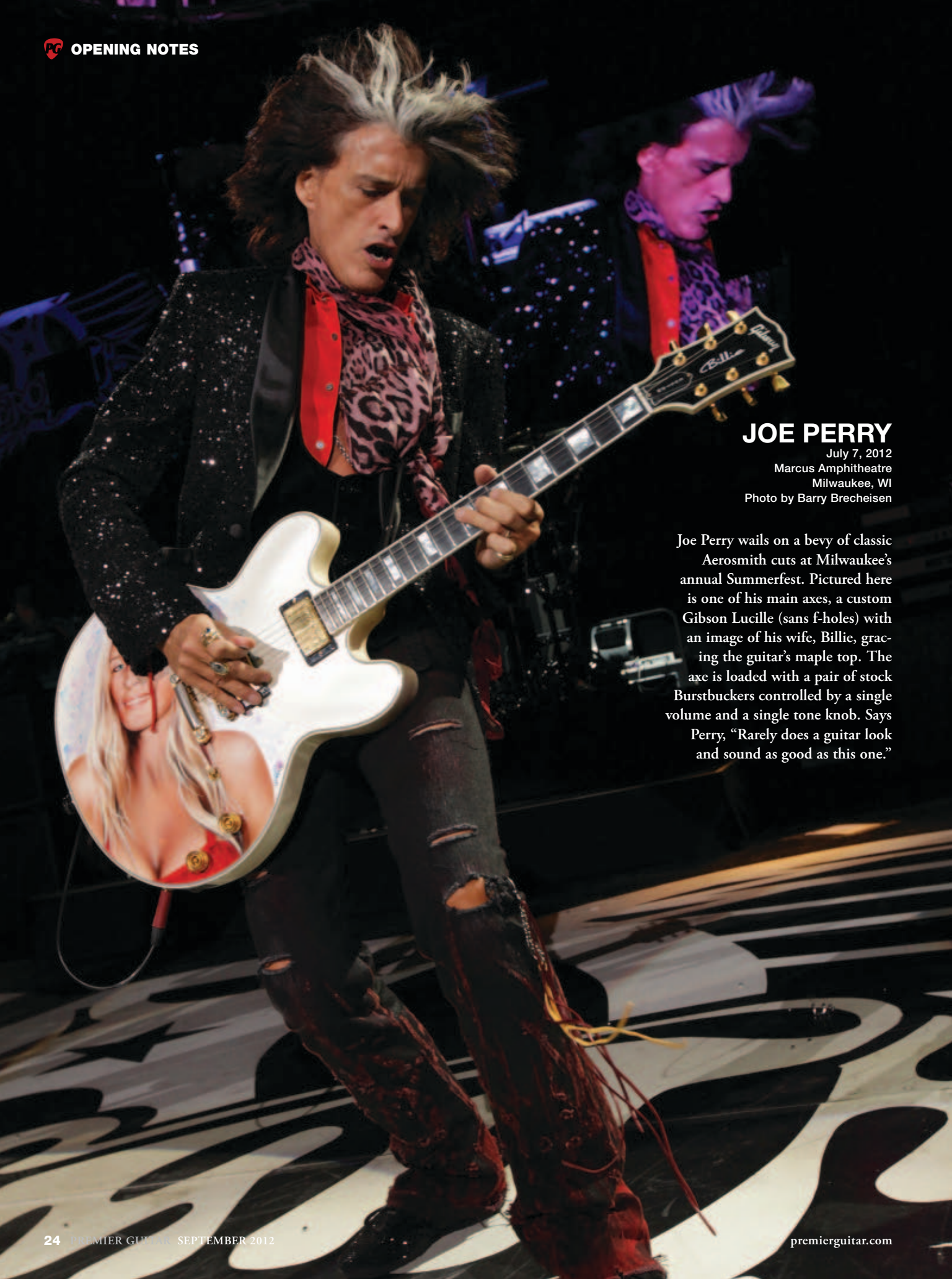

JOE PERRY

July 7, 2012
Marcus Amphitheatre
Milwaukee, WI
Photo by Barry Brecheisen

Joe Perry wails on a bevy of classic Aerosmith cuts at Milwaukee's annual Summerfest. Pictured here is one of his main axes, a custom Gibson Lucille (sans f-holes) with an image of his wife, Billie, gracing the guitar's maple top. The axe is loaded with a pair of stock Burstbuckers controlled by a single volume and a single tone knob. Says Perry, "Rarely does a guitar look and sound as good as this one."

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- Kirk Hammett, METALLICA
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Your Feedback

HIGH VOLTAGE

Cool article ["Amp First-Aid," August 2012]. Simple common sense. Your number one [tip]—carry a backup—has to be the *prime* advice to guitarists. My Marshall 18-watt died at a gig (I later found out that most of them did that!) and I would have been out of luck, but I had purchased another amp on the way to the gig. Talk about luck. Ever since, I have a cute little Boogie Mark I head for insurance: takes up no space and sounds like a real amp.

—Jay Robertson
via Facebook

I just wanted to say how much I have enjoyed your magazine—been there from the very, very beginning. I really enjoyed the article on the 15-watt amps ["Champions of Chime," August 2012]. I wish you'd consider writing an article on some of the less expensive amps, such as the Vox Night Train, the one from Blackheart, and others in that price range. It'd even be nice to see how they compare to the boutique amps. I'm pretty sure others would really be interested in this also. Keep up the good work, and unbiased opinions on your gear reviews.

—Andy Rhodes
Wilkesboro, North Carolina

Hey Shawn,
Back in 1965, I was 13 and my dad bought me a Dakota Red Fender Mustang and a Deluxe Reverb. Knowing my dad, he didn't spend all that much. Less than a year later, the Folk Boom came to town and I sold both pieces to fund a Goya 12-string. Boy, was *that* stupid. I've made plenty of boneheaded trades over the years, but that stands out as one of the worst.

Regards,
Richard Larris

Carvin's Take

We appreciate *Premier Guitar* and Mr. [Jordan] Wagner taking the time to review Steve Vai's latest amp, the VL300 head. In response to Mr. Wagner's comments: "I still needed to really push the presence and treble controls," and "Gain can be muddy, difficult to get crisper overdrive tones," this could make sense considering the VL300 was tested using the Celestion G12T75, which is noted for having a darker sound. *Premier*'s earlier review on the Emperor 4x12 noted that this enclosure has a boosted low-end response, which would require pushing the hi-frequency controls.We suggest to all reviewers that a reference standard such as the Celestion Vintage 30 be used simply because everyone knows this speaker, which the VL300 was designed around because it is Mr. Vai's choice of speaker.

In respect to the MI industry,
Carson Kiesel
President
Carvin Corp

Cultural Exchange

Andy Ellis' article, "The Secret World of Hindustani Slide" [July 2012] was as edifying to read as it was entertaining. It filled in some fairly significant gaps in my knowledge of one of my favorite subgenres of music (the importance of the Hawaiian influence and the fact that Brij Bhushan Kabra's customization of a guitar preceded Vishwa Mohan Bhatt's, to name just a couple of examples). I'd like to return the favor, if I may, and touch on a few points the article didn't.

Both V.M. Bhatt and Kavichandran Alexander (founder of the Water Lily Acoustics record label, which produced the Bhatt/Cooder collab, *A Meeting by the River*) have given credit for much of their interest in cross-cultural musical endeavors to JFK's efforts in supporting and promoting legislation such as the Fulbright-Hays Act of 1961. One program in particular brought bluesmen from the Delta and the Deep South to places like India and Ceylon, profoundly influencing people like Bhatt and Alexander. It's almost embarrassing to admit that I'd missed the obvious elements of the Hawaiian musical tradition in these works, but I'll make the excuse that what I'd really been listening closely for has been those little tastes of blues flavor.

I'd like to make two RIYL-style recommendations in addition to the four excellent ones contained in the "Essential Listening" sidebar. There are two albums of this ilk, which have inspired me to repeatedly use the phrase "changed my life." For instrumental music fans, I can't think of a better album than V.M. Bhatt, Jerry Douglas, and Edgar Meyer's *Bourbon & Rosewater*. (I was going to say, "for fans of instrumental music with this variety of cross-culturalism" or some such, but no, I can't think of a better album for fans of instrumental music. Period.) And for folks who need some high-quality vocals to keep their attention, *Dead Man Walking: The Score* (not "... the Soundtrack") can't be beat.

Honestly, I've yet to hear a bum track on any album put out by Water Lily Acoustics or Realworld (the label initiated by Peter Gabriel's insistence upon making the score for *The Passion of the Christ* sound more like the time and place of Christ and less like that of the 16th Century Roman Catholic Church).

Again, kudos to Mr. Ellis and *Premier Guitar* for a wonderful article!

—Kevin D. McCollough

Hello Kevin:
I really appreciate your kind words. It's rare to get such well-reasoned, informed comments on stories I've written and when it happens, it inspires me to keep researching and writing. I also appreciate learning about the albums you listed—none of which I've heard. So we both get new insights ... can't beat that!
Thanks,
AE

P.S. I actually got a lesson from Debashish Bhattacharya in the mid '90s as part of a feature I wrote. Listening to him play from two feet away is humbling. Very humbling.

Keep those comments coming!
Please send your suggestions, gripes, comments, and good words directly to **info@premierguitar.com**.

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News Bits

Photo by Ryan H.

INDUSTRY

Fender Withdraws IPO Citing "Economic Conditions"

New York, NY — Fender announced on July 20 that plans to take the company public have been cancelled, citing the global financial market's grim outlook as rationale for the reversal.

"Current market conditions and concerns about economic conditions in Europe do not support completing an initial public offering at what we believe to be an appropriate valuation at this time," said Fender CEO Larry Thomas in a statement to the press.

The initial public offering (IPO) was announced in March and originally intended to raise $200 million. The *Los Angeles Times* reported earlier in July that Fender expected to sell 10.7 million shares at $13-$15 per share for a potential total of $160 million.

MOVING

Sam Ash to Leave Music Row

New York, NY — Sam Ash announced plans to leave New York City's West 48th Street, once known as "Music Row." The retail giant owns a number of music stores on the street, and the *New York Post* reports they'll be moving them all, starting with brass, winds, and drums, to a new location on West 34th Street. Legendary West 48th Street music store Manny's Music, owned by Sam Ash at the time, closed in 2009, while fellow longtime Music Row resident Rudy's Music Stop still occupies the row.

OUT OF BUSINESS

National Guitar Workshop Closes Doors

Litchfield, CT — National Guitar Workshop announced in July that they were ceasing operation and filing for Chapter 7 bankruptcy. The company, which provided workshops with top guitarists around the country to guitarists of all skill levels and styles, noted on their website they had seen a dramatic decrease in enrollment and increased cost of operation in recent years. **guitarworkshop.com**

CONTESTS

Peterson Launches "Fly Me 2 NAMM" Video Contest

Alsip, IL — Peterson Strobe Tuners is awarding two Artist badges, U.S. airfare, lodging, and spending money for the 2012 Winter NAMM show in Anaheim, California. Contestants can enter by submitting a video of themselves using Peterson products to petersontuners.com. The video

with the most views and "likes" will win the grand prize.
petersontuners.com

Joe Satriani Offers Master Class to 10 Winners

Los Angeles, CA — Ten guitarists will win a master class with Joe Satriani in a new contest presented by Guitar Center, Ibanez, and D'Addario. Would-be Satch students submit their playing over one of 10 different Satriani-backing tracks. The winners, selected by Satriani himself, will be flown to Los Angeles for the class and awarded an Ibanez JS20S Joe Satriani Signature Guitar and a D'Addario prize package. Submissions are open through August 28.
satriani.whooznxt.com

TOURS

The Who Announces *Quadrophenia* Tour

London, England — The Who announced an extensive North American tour this fall and winter where the band will play its *Quadrophenia* album in its entirety, along with the band's biggest hits. The tour spans November through March and includes stops in 36 cities in the U.S. and Canada.
thewho.com

Van Halen Cancels Postponed Tour Dates

Los Angeles, CA — Despite promising that postponed concert dates would be made up after international touring, many of the postponed tour dates have been removed from ticketing websites and refunds are being offered. At press time, only three tour dates—all in Japan—were listed on the official Van Halen website.
van-halen.com

HONORED

Slash Gets Walk of Fame Star

Hollywood, CA — Slash was honored with a star on the Hollywood Walk of Fame on July 10, 2012. Donning his iconic top hat, Slash was joined by pal Charlie Sheen for the ceremony, who reportedly shot one-liners roasting Axl Rose and referenced their drug use of the '80s. Slash's star is situated appropriately in front of the Hard Rock Café on Hollywood Blvd., where he played a private show after the induction.
slashonline.com

ONLINE

Chicago Music Exchange's 100 Riffs Goes Viral

Chicago, IL — Chicago-based music retailer Chicago Music Exchange went viral in July with "100 Riffs (A Brief History of Rock N' Roll)," a YouTube video featuring CME's Alex Chadwick playing 100 riffs in a single 12-minute take. The video starts with Chet Atkins' "Mr. Sandman" and concludes with St. Vincent's "Cruel," covering everything from the Rolling Stones, Led Zeppelin, and Black Sabbath, to Nirvana, Red Hot Chili Peppers, The White Stripes, and Mastodon in between. At press time, the video had over 3 million views and counting.
chicagomusicexchange.com

BIRTH

Zakk Wylde Welcomes Son, Sabbath

Los Angeles, CA — Zakk Wylde and wife Barbaranne welcomed their fourth child in July, a son named Sabbath Page Wielandt Wylde. Sabbath—obviously named in honor of Black Sabbath—joins his musically named brother Hendrix as well as sister Hayley Rae and brother Jesse in the Wylde clan.

BE SOME BODY

Most players and their guitars are attached at the hip, and lifers always talk about their axes as an extension of their bodies, but here *PG* editors and Grace Potter take it all the way by imagining themselves *as* an actual guitar.

Rebecca Dirks

Web Content Editor

What are you listening to? I appreciate Spotify for filling in the gap between the '50s and '60s classics I listened to as a child and the '90s music I grew up with. Right now, I'm digging some Blue Öyster Cult. The introduction to "Cities on Flame with Rock and Roll" brings a smile to my face.

If you were a guitar, what model would you be and why? Gibson Dusk Tiger: technologically advanced, half-machine, and kind of awkward. Yep.

Andy Ellis

Senior Editor

What are you listening to? Taj Mahal, *Hidden Treasures of Taj Mahal 1969-1973*. The fat, searing, soulful sound of Jesse Ed Davis is woven into previously unreleased material. Davis (Mahal's lead guitarist for three years) died young, but his playing is timeless.

If you were a guitar, what model would you be and why? A 28 1/2"-scale B–B baritone archtop with a 17" lower bout, 3" depth, Duncan Seth Lover, ToneStyler, 6230 fretwire, Waverly tuners, and trapeze tailpiece. I'd ring like a miniature piano!

Shawn Hammond

Editor in Chief

What are you listening to? Field Report's eponymous debut—a lazy, moody paean to Dylan and wasting sunny days on the river.

If you were a guitar, what model would you be and why? My manufacture date says I'm a CBS-era Tele, but I've been modded with a Bigsby (paired with brass bridge saddles, of course), removable boxes that enable both solidbody and hollowbody sounds, and pickups that rotate to provide either TV Jones Magna'Tron twang or traditional single-coil bite.

Tessa Jeffers

Managing Editor

What are you listening to? Golden-toned fingerpicker Michael Kiwanuka, *Home Again*, for the sunshine-y, mellow mood, and Smashing Pumpkins' *Oceania*, which satiates my need for pounding, orchestral rock and riffage.

If you were a guitar, what model would you be and why? A resonator, but not your mama's or daddy's. A thinline single-cutaway electric covered in rustic iron, chrome cone, brass plating, and a versatile P-90/piezo combo. Earthy, gruff growl with a classic foundation, yet somehow edgy and hard to wrap your head around.

Chris Kies

Associate Editor

What are you listening to? Polar opposites: Thanks to my wife, Maroon 5's fourth disc, *Overexposed*, is everywhere I turn and I can't escape its poppy-sweet nectar, while the debut of German doom rockers Kadavar is reminiscent of early Sabbath and Sleep wooliness mixed with Rush's prog and riff mastery.

If you were a guitar, what model would you be and why? Silverburst Les Paul Custom: It's classy but not uptight, a dependable workhorse, and most importantly—a hell of a rocker that can get down.

Rich Osweiler

Associate Editor

What are you listening to? Bob Mould's *Silver Age*. The master of power pop delivers a nice set of 10 shimmering gems on this solo effort.

If you were a guitar, what model would you be and why? I love variety and am a sucker for innovation that truly stands the test of time, so I'm torn between a Martin D-28 and a Fender P. Both have inspired countless artists and manufacturers and are go-to choices for a crazy-wide spectrum of genres.

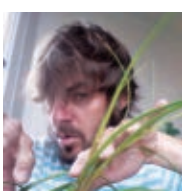
Grace Potter

Guest Picker

What are you listening to? I'm listening to Duke Ellington, Louis Armstrong, Buddy Rich, Billie Holiday—I'm prone to listen to music that's pretty far from modern … I gotta get my mind off pop music for a hot second when we're not onstage!

If you were a guitar, what model would you be and why? I just designed my signature Flying V from Gibson. I took a lot of time making sure that the tone, weight, shape, design was right on. It's an exact replica of my personality! I like to call it the "Flying Grace."

Charles Saufley



Gear Editor

What are you listening to? Ty Segall's *Twins* and *Slaughterhouse*—this Frisco garage savant is on fire, manically prolific, and firing off should-be hits like some hybrid, Gatling gun-toting, flamethrower monster. Between those and the forthcoming Rangda record (guitar slinging demons Sir Richard Bishop and Ben Chasny with the mighty Chris Corsano on drums), my head is kinda spinning.

If you were a guitar, what model would you be and why? Today, I feel like a rusty, out-of-tune Mustang in lake placid blue.

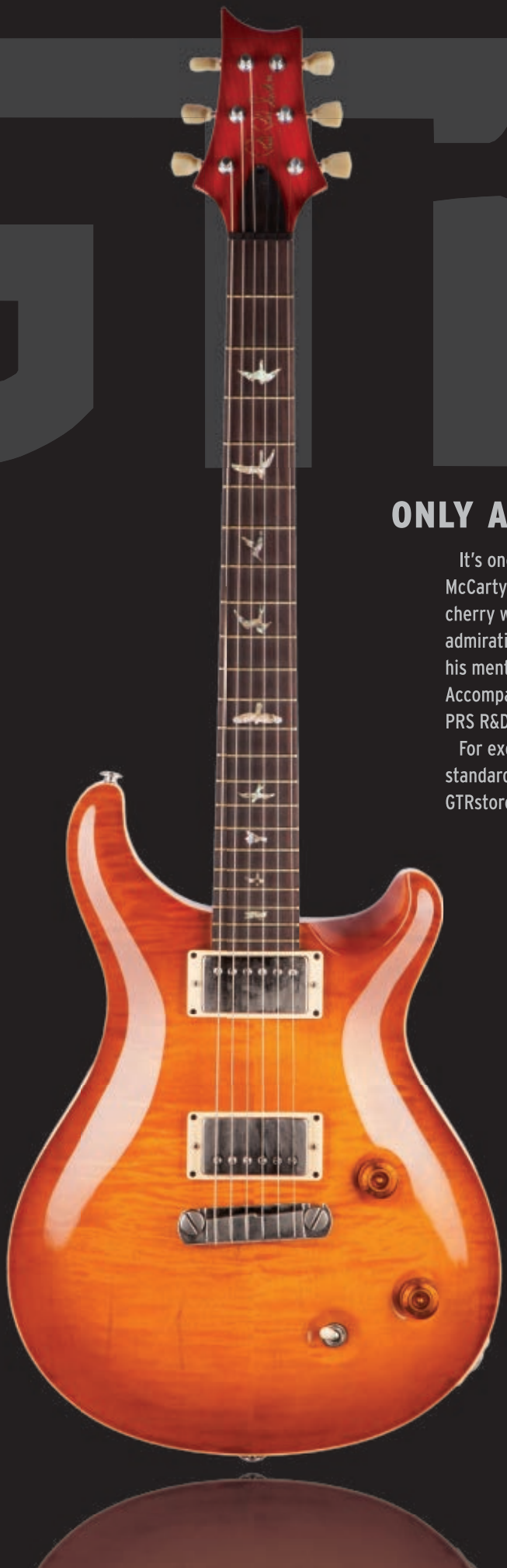
Jason Shadrick

Associate Editor

What are you listening to? Zac Brown Band, *Uncaged*. Seems like Zac and the boys are heading a little more towards the ABB-influenced jamband sound. All they need now is for Jack Pearson to join the group. Trust me, look him up.

If you were a guitar, what model would you be and why? It would definitely be a semi-hollow guitar. I am thinking a cherry red '61 ES-335, but it *has* to have the block inlays. That is not negotiable.

GTR



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ALBUM

Jimmy Herring

Subject to Change Without Notice
Abstract Logix

No other guitar player has weaved through the jam-band scene quite like Jimmy Herring. Starting with Aquarium Rescue Unit, Herring has cranked out twin-guitar rock with the Allman Brothers, explored spacey jams with The Dead, and is currently with Southern rockers Widespread Panic. Although his previous gigs showcased a down-and-dirty Americana approach, his personal tastes lean more towards jazz/fusion. On *Subject to Change Without Notice* Herring takes his spot next to Beck, Morse, and McLaughlin as one of jazz-rock's guitar royalty.

The core of Herring's group revolves around a virtuoso rhythm section consisting of drummer Jeff Sipe, bassists Neal Fountain and Etienne Mbappé, and keyboardist Matt Slocum. On "Miss Poopie," Sipe, Slocum, and Fountain lay into a groove that would make it difficult for Sly Stone to sit still. No matter the direction—from faux-Gypsy swing ("Red Wing Special") and chicken-pickin' country ("Curfew") to the Beatles and McLaughlin covers—Herring leads through every musical challenge with authority, taste, and conviction.

Herring's compositional chops shine on "Twelve Keys," a burning bebop tune that, thanks to his keen sense of melody and amazing grasp of harmony, comes off as a post-bop tour-de-force. Béla Fleck joins the party on "Curfew," which showcases an appreciation for Chet Atkins in the opening riff before going into a Hank Garland-inspired melody, while still nailing the old-school twang sound in the chorus.

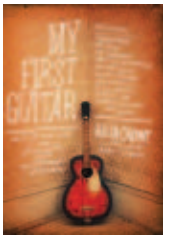
This is Herring's *Wired*, a snapshot of a stylistically unmatched guitar giant who not only has chops galore, but knows when to take his foot off the gas and tug on your heartstrings with tone and taste. —Jason Shadrick

Must-hear tracks: "Miss Poopie" and "Curfew"

BOOK

My First Guitar: Tales of True Love ...

by Julia Crowe
ECW Press



Julia Crowe has quite a concept in this expansive collection of vignettes of seminal guitarists telling how they first planted the playing seed. The author describes how the book was conceived, her younger self boarding a flight to meet Jimmy Page in London for a cup of coffee—but she lets him, and the other players, do most of the talking.

Crowe (guitarist, composer, journalist, and teacher) impressively executes heartfelt storytelling gleaned from hundreds of interviews with the "who's who" of players (Dick Dale, Seymour Duncan, Alex Lifeson, Albert Lee, Scotty Moore, Steve Vai, etc.), and she delivers the goods in unique first-person accounts. Les Paul recounts acquiring a $3.95 Sears-Roebuck guitar after his mother gave him grief for playing piano ("it's not convenient") *and* the drums ("she immediately ordered that out of the house"). The rest is history, as they say, but this book is testament. It's not just about the first guitars or the players themselves, really. It's much more: the follow-up from that first chance meeting—that coming-of-age experience with music. This is life, told and celebrated through guitars. —Tessa Jeffers

ALBUM

Mike Keneally

Wing Beat Fantastic
Exowax

The spirit of Frank Zappa permeates Mike Keneally's recorded oeuvre, and that's hardly surprising as Keneally toured with Zappa and played on five of his albums. On *Wing Beat Fantastic*, Keneally works with an equally distinctive collaborator—XTC's Andy Partridge. This pairing yields a set of quirky, melodic songs that manage to sound catchy while remaining unflinchingly adventurous. Partridge provides the lyrics and some drum loops, while Keneally handles all the guitars, keys, and lead vocals. And let's not forget Keneally's trademark background vocals—an eerie choir that drifts across the album like a sonic version of the Northern Lights.

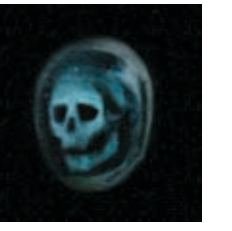
Fans of this virtuoso's serpentine electric lines will find plenty to celebrate here. His jangly acoustic chording and crisp flat-picking get plenty of airtime, but it's his *arranging* that will keep you mesmerized. Richly layered parts unfold in startling ways: Guitars seamlessly morph into voices or horns, and synth pads mutate into backward 6-string riffage. Kudos to Mike Harris for mixing a perfect album to explore with headphones late at night. —Andy Ellis

Must-hear track: "Wing Beat Fantastic"

ALBUM

Six Organs of Admittance

Ascent
Drag City



Ben Chasny is among the most unsung guitar heroes on earth. Since the late '90s, he's helped redefine and obliterate the boundaries of acoustic fingerstyle and singer-songwriter genres as Six Organs of Admittance, reshaped heavy psychedelia as a member of Comets on Fire, and kept improvisational electric guitar alive working alone and with collaborators including Sir Richard Bishop and Chris Corsano.

Ascent is a record that deftly bridges all three worlds. Recorded with engineer Tim Green and Chasny's cohorts from Comets on Fire, the album resurrects a project that began 10 years ago as Electric Six Organs. Beyond a few crackling performances, it never saw daylight. But *Ascent* sounds more

vicious, boundless, and irreverent for being pent up so long. Chasny unleashes a string of hellfire licks that shape-shift from Alvin Lee to Keiji Haino and John McLaughlin while his crew holds down a strutting metallic punk groove. "Your Ghost" lurks ominously between the atmospheric elegance of John Martyn and Skip Spence's haunted laments. It's this beautiful elasticity—gracefully swinging between abandon and emotional depth—that makes this one of the most vital, visceral guitar records of the year. —Charles Saufley

Must-hear track: "Even If You Knew"

ALBUM

Jon Spencer Blues Explosion

Meat and Bone

Boombox/Mom + Pop

For those who love their "blues" chock-full of surliness, attitude, and raw energy, it's time to rejoice. The Jon Spencer Blues Explosion is back after an eight-year hiatus.

Blending a stew of punk, blues, twang, noise, rock, indie, and plenty more, this veteran NYC trio—featuring Spencer on guitar and vox, Judah Bauer on guitar, and Russell Simins on drums—has been knocking down barriers and influencing a number of successful mainstream bands (that offer up a somewhat lighter version of the JSBX) for more than 20 years.

You know you're in for a wild ride with the first track's fuzz-laden, feverish drive that would make Iggy proud. Delicious jams on tunes like "Black Thoughts" to the slow-moving and syrupy "Unclear" make for an engaging assortment. Produced by Spencer, who howls like a possessed songbird from prehistoric times, the record has a chaotic flavor with an aggressive and ultra-dirty delivery that's beautifully put together at the same time. —Rich Osweiler

Must-hear track: "Black Mold"

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GIVING YOUR INSTRUMENT AN ATTITUDE ADJUSTMENT

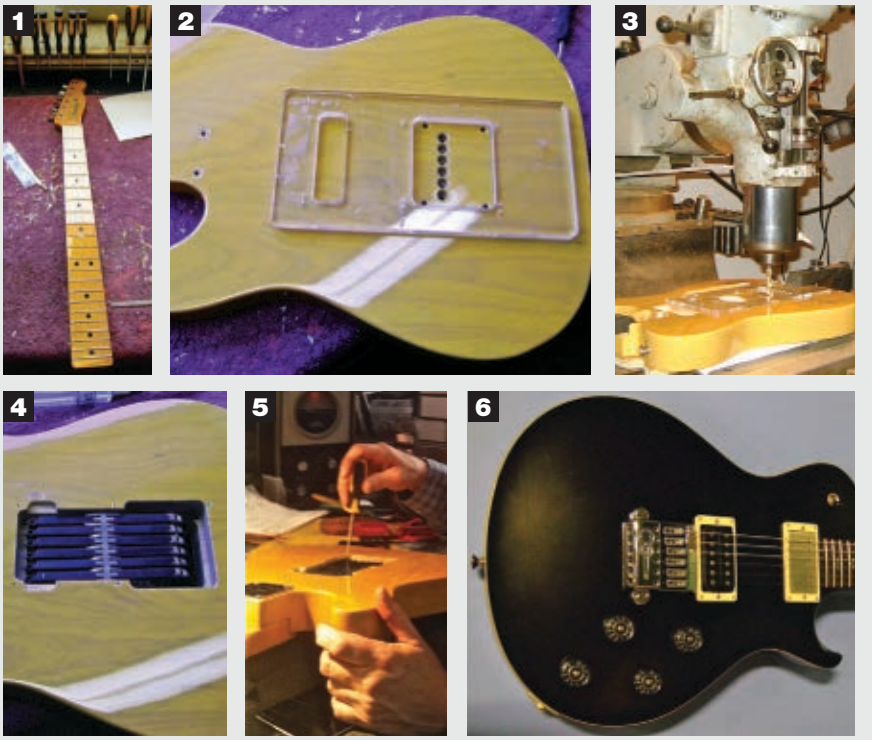
BY PAUL "TFO" ALLEN

Most of us constantly search for ways to improve our tone and stay musically inspired. One way we can keep things fresh is to have an assortment of gear that collectively delivers a broad spectrum of diverse tones. Over the years, I've noticed that different guitars bring out different aspects of my playing. For instance, if a guitar has a thin sound and the notes decay quickly, that will often prompt me to play clean, "chanky" rhythm parts. Guitars have personalities and just like people, some personalities are better equipped to handle certain situations than others. When I determined that a couple of my guitars needed more defined personalities, I took them to Glaser Instruments in Nashville for an attitude adjustment.

The first guitar in line for mods was my Paul Reed Smith SC245. This has always been a great instrument for vintage tones, but I needed a guitar in my arsenal that would deliver more aggressive, modern-rock tones. The SC245's single-cut mahogany body and maple top contributed some significant tonal characteristics for this sound, but the stock pickup in the bridge position wasn't supplying the right vibe for my intentions. For modern rock, its difficult to go wrong with a high-output, uncovered pickup, so I decided to have a PRS Mark Tremonti Treble humbucker installed in the bridge. This pickup has a broad scope of harmonic information and does a great job of teaming up with my high-gain amplifiers for a massive rock tone.

Next, I had the Glaser Instruments team install an Evertune G model bridge to ensure rock-solid tuning. The first thing people ask about when they see one of my guitars outfitted with an Evertune system is if the modification changes the sound of the guitar. If I were to compare the feel of my pre- and post-Evertune guitar to posture, I'd describe the guitar as feeling a bit more upright and robust after the installation. Perhaps surprisingly, the basic integrity of the tone was not compromised in the process. The Evertune simply adds a very slight amount of clarity to the sound of the strings.

The process of installing an Evertune bridge is very involved. A significant amount of wood has to be dug out of the body and everything has to line up just right. I pride myself on being a "do-it-yourselfer" in a lot of areas, but the Evertune installs on my PRS and Telecaster were jobs I left to the pros at Glaser Instruments.

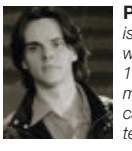


1. Removing excess finish from a Tele's fretboard for a snappier response. **2.** Aligning the routing template for the Evertune T model bridge. **3.** Nick Drushel doing precision routing for the Evertune. **4.** Installing the Evertune hardware. **5.** Tom Barkstrom putting the final touches on the Evertune setup. **6.** My PRS SC245 modded with an Evertune G model bridge and a Mark Tremonti Treble bridge humbucker.

Next up, I had to address an issue with my Telecaster's fretboard. My goal with the Telecaster was to get the guitar as bright sounding as possible with plenty of bark, and the finish on the fretboard was getting in the way of this goal. Guitar necks will sometimes get sprayed with an excessive amount of finish. While some players like the way this feels, I prefer a faster-feeling fretboard without a bunch of sticky finish. Also, the applied finish can get caked onto the frets and dampen the springy feel and sound that notes should have on a maple fretboard. I know some of you might be thinking that fretboard finish has no affect on tone. But before you reject the idea, remember that reflection and absorption are factors in *any* sound, so it is vital to consider the materials that are interacting with the source of the sound.

When we clap our hands in a room full of carpets, the sound is short and dead. When we clap in a room with hard surfaces, the sound is longer, more complex, and alive. I've read that Brian Setzer actually takes a piece of wood on tour to put under his amps so the sound has something to "slap against." I realize that finish and carpet are not the same density, but for the sake of illustration, too much finish on a fretboard has a "carpeted room-like" sound and takes some life out of the note. And I found that removing the finish from the fretboard added a considerable amount of liveliness to the tone and response from the guitar.

The modifications to the PRS and Tele significantly improved the tone and feel of each instrument. Because of this, I now use these instruments much more frequently. A good way to measure how much you like an instrument is simply determining how much time you spend playing it. If you have a guitar that spends most of its life in the case, take time to evaluate why it doesn't inspire you to play it more often. Once you isolate the culprits, then you can begin to investigate an array of possibilities to give your instrument an attitude adjustment.



PAUL "TFO" ALLEN
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—COLLIN RAYE

PROS AND CONS OF REAL AMPS VS. SOFTWARE AMPS

BY RICH TOZZOLI

Over the years, I've had a lot of experience recording with both real guitar amps and amp plug-ins. In this column, I'd like to share some of the pros and cons of each as they relate to real-world studio production.

When I first started playing, I was lucky enough to plug into some nice tube amps, so I grew up with the sound of glowing filaments and that particular give-and-take that only a good, nuts-and-bolts amp can deliver. Since then, I've amassed a small but very useful amp collection that actually has a lot to do with plug-ins.

Here's what I mean: I've found that plug-ins do a good job of emulating Fenders, Marshalls, and some heavier-gain amps by Soldano and Mesa/Boogie—and, yes, I do have a real Mk IV Boogie head for comparison. But the software makers don't seem to offer classic amps from Gibson and Magnatone—both of which I use quite a bit in my TV work, which is heavy on blues and country. So that's where I focus on the real thing. What these Gibson and Magnatone amps offer is amazing reverb, vibrato, and tremolo, as well as a spongy saturation that's unmistakable and otherwise hard to come by.

I drive all my amps with a Creation Audio Labs pedal called the Holy Fire. Offering up to 12 dB of clean boost, this pedal allows me to hit the input hard and bring out the true character of tubes. I can also edge down some of the treble with the pedal's filter knob. The feel I get from these amps—being able to increase the crunch as I hit the strings harder—helps me play better and lay down more dynamic parts. But this comes at a cost: To get a kick-ass sound from these amps, I need to play them fairly loud, and that has its own set of issues. Also, the amps need to be captured properly—which is an art form in itself.

I get the best results using a combination of mics. I like to pair dynamic and ribbon mics—either a Sennheiser MD 421 or a Shure SM57 dynamic, along with a Beyer M 160 or a Royer R-121 ribbon mic. They go through good cabling into high-quality preamps—usually something from Universal Audio, Focusrite, or Grace Audio. But that's just what works for *my* ears—as long as the amps are properly represented, other combinations can work well, too.

Sometimes, I'll crank up a room mic with a Universal Audio 1176-type limiter/compressor to get a huge sound. Again, what this affords is a quirky sonic signature that plug-ins usually cannot achieve unless you re-amp their output to a room. What's important here is preserving the inspiration that small, unique amps like my Gibsons and Magnatones deliver as you play—and, of course, their unique tone. However, old, off-the-beaten-path amps like these have to be properly maintained, which adds to their cost. It's like owning an old classic car: Things happen, so be prepared.

Line 6's Amp Farm modeling a 1966 Vox AC30 mic'd by a Shure SM57.

Used creatively, the Treadplate amp simulator in Avid's Eleven Rack can deliver convincing high-gain tones.

Amp plug-ins, on the other hand, don't have to be maintained (though the computers they reside on do). And, of course, it goes without saying that the biggest boon they offer is the wide variety of amps, virtual cabinet combinations, emulated pedals, and effects they put at your fingertips. I've been using amp plug-ins since they first came on the market, so I can attest that some of them are quite good now. And, yes, some of them can deliver both convincing tones and a lot of the spongy give-and-take we guitarists love in real tube amps.

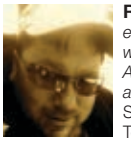
Using headphones, you can track with plug-ins at any time of the day or night, and there is no real setup. Just plug in your guitar, dial up an amp, and get to work—there's no creative time wasted on fiddling with stands, cables, and mics. In addition, when it comes time to mix the tracks, you can easily alter the sound. You can decrease signal saturation, change the EQ, insert a few pedals, or turn up the reverb—things that are not so easy to do on tracks cut with real amps.

One trick I've found with amp plug-ins is to *not* use their built-in reverb. Instead, I'll use something like Audio Ease's Altiverb, which models real springs, rooms, and studios. I'll often send my amp plug-in into Altiverb's Fender Super Reverb or an impulse response I made from my Gibson Falcon. These tasty reverbs help sell the sizzle of the plug-in and generally make for a better-sounding production.

Another important aspect of guitar plug-ins is working with your computer's *latency*—the signal delay that happens between the time you play your guitar and when you actually hearing it through the computer. I've been running Pro Tools TDM for many years, and I've used Line 6's Amp Farm 3 with great success. The low latency of a TDM system and TDM plug-ins makes it possible to feel your guitar response in a manner that feels natural—like you're playing through a real amp. However, I'm about to move up to Pro Tools HDX and, for some reason, Line 6 is not updating Amp Farm for this new platform. I've talked to other professionals who use HDX and are in the same boat, so I'll be trying to figure that problem out shortly. I'll have to start tracking through RTAS plug-ins, so stay tuned for that info.

The point is, it's important to consider latency when working with a guitar plug-in. You have to make sure its response time allows you to properly perform your part without the delay lag throwing you off. Real amps don't mess with the immediacy of fingers touching strings—what you play and hear is what you get.

Both technologies—real amps and plug-ins—have their pros and cons. And, like most everything else guitar related, we all have our opinions on what's good and what's not. But, from my experience, playing to the strengths of each and using them for what they do best rather than picking one side or the other is the way to go.



RICH TOZZOLI *is a Grammy-nominated engineer and mixer who has worked with artists ranging from Al Di Meola to Ace Frehley. A life-long guitarist, he's also the author of* Pro Tools Surround Sound Mixing *and* The Ultimate Guitar Tone Handbook, *as well as a composer for shows such as* Fox NFL, Pawn Stars, American Restoration, *and* Gene Simmons Family Jewels.

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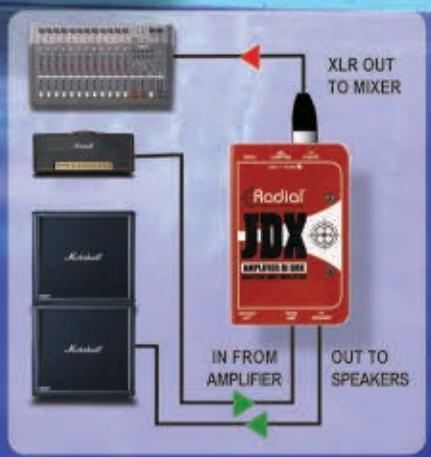

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THE SPACE OF THE BASS BY VICTOR BRODEN

What is the sound *you* hear in your head when you think of the word "bass"? For some, it means a huge tone containing the entire frequency range and all the overtones and vibrancy of a grand piano's low strings. To others, it just means massive low end—like the enormous, pillowy sound that Aston "Family Man" Barrett got with Bob Marley & the Wailers. There are also players who consider bass to be the punchy sound in the low-mid register—that tone many of us affectionately refer to as "the Jaco sound."

But while the ideal bass sound varies from player to player, in every context there's a correct sonic space that requires personal tone preferences to be put aside. Fortunately, the setting will dictate the correct space for the bass, as long as you listen and look at what's going on around you.

When I arrive at rehearsal for a show or a session, I consider a few factors before estimating the space of the bass. I try to estimate the sonic size and placement of my bass tone. My primary focus is *always* the kick drum, because it's the only instrument that should be anywhere near me, in terms of frequency. If the drummer is playing a large kick drum with a big, slow, warm attack, I will often go in the opposite direction, sonically—picking a more modern sound with plenty of low-mid attack and high-end crispness. I'll also take out some of the sub-lows to further separate my sound from the drummer.

On the other hand, if the drummer is playing a modern kick drum that's smaller and tighter, I'll fatten up my lows, carve out my mids, and make the highs sound slightly mellow. One way to easily achieve this type of tone is by favoring the neck pickup and using a vintage-sounding amp.

The next thing to consider is the guitar situation. Are there two guitarists? Are they using large, closed-back cabs that put out a lot of low end, or are they using smaller, open-back cabs with less bass? Lots of low end from the guitars means you'll have to create a sub-low frequency, as well as dial in some high, cutting tones. Using a plectrum and playing through a large stage rig with the amp's lows boosted will help you get heard in this type of situation.

A few years ago, my good friend Jim invited me to check out his show. He plays bass with a 15-piece band that ends up on the top-five list of highest-grossing tours in the U.S. every summer. Jim asked me to give my honest opinion about the mix, and needless to say, I expected it to be top notch. He's a world-class bassist and was playing a $5,000, custom-made bass with a huge tone that would light up many frequencies on a sonic-spectrum analyzer. It's the kind of instrument that would make a solo bass piece sound stunning. But, at the end of the night, I had to tell him I had trouble hearing him—even though I *saw* him play his butt off.

In order to be felt and heard in a band that large, the bass tone can't be too big. The sound has to be punchy in a very specific register. Since Jim is a professional with 30 years of experience, he had his amp adjusted perfectly onstage—boosting only the critical frequencies and cutting the others to get out of the sonic space belonging to his 14 bandmates. But the front-of-house (FOH) engineer took the bass signal from a DI, which is certainly very common. In this case, it didn't work to Jim's advantage and the whole mix suffered. While FOH engineers should be experts at knowing the sonic space for every instrument, sometimes they are not. We can make it easier for them to get the bass tone right in the PA by knowing the space of the bass for that specific band and venue. The decision is as much technical as it is artistic.

LEFT: If a gig calls for a large tone with a slower attack that focuses on the sub-low frequencies, the sound from the neck pickup on this short-scale Epiphone and a vintage 6x10 cab should do the trick.

RIGHT: But if the gig needs a punchier, more modern tone, you may want a setup like the Music Man-style pickup from this Sandburg bass, along with a 4x10 cab with extra high-power handling for clean lows.

A few weeks later, Jim and I went bass shopping. We decided he needed a bass that barked in the mids—to the point of almost sounding "honky." The bass also needed to have a natural absence of sub-lows. Jim could have purchased any instrument in the store, but we decided on a $700 J-style bass because it had a pronounced bump in a sonic space that would work for his tour.

The FOH engineer ended up being thrilled with the sound of this inexpensive, factory-made instrument. Previously, the engineer had failed to dial in a great tone from the DI because the $5,000 bass gave him too many unusable frequencies. The bump in the mids provided by the budget bass ended up solving that problem before the sound even reached the soundboard!

If you listen to and observe the players and equipment around you, you will have the tools you need to find the right space for the bass. The resulting tone may not be what you love at home or in the store, but it *will* be the right tone for the gig. And the wisdom and discipline required to make those choices is every bit as important as that cool bass part you're playing.

VICTOR BRODÉN
Nashville bassist and producer Victor Brodén has toured and recorded with more than 25 major-label artists, including LeAnn Rimes, Richard Marx, Casting Crowns, and Randy Houser. His credits also include Grammy-winning albums and numerous television specials on CMT and GAC, as well as performances on The Tonight Show *and* The Ellen DeGeneres Show. *You can reach him at vbroden@yahoo.com.*

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HOW TO CHOOSE STUDIO MONITORS BY MITCH GALLAGHER

For the past few installments of Guitar Tracks, we've been looking at the front-end (aka capture) portion of our recording rigs—microphones and microphone preamps. Now we're going to shift our attention to the back end and talk about monitors. In my opinion, monitors are *the* most important item in your studio. Many musicians spend tons of time obsessing over microphones, mic preamps, and other gear, but then purchase whatever monitors present themselves without a second thought. Big mistake! Mics, preamps, and other gear are super important, but virtually everything you do in your studio—tracking, editing, processing, mixing, and mastering—is determined by the sound you hear out of your monitors. So your monitors simply *must* be accurate, meaning they must reproduce audio signals without adding coloration to the sound.

What happens if your monitors aren't accurate? Your mixes and tracks won't be "transportable." In other words, your tracks may sound fine through your monitors, but when you go to play them back on your MP3 player, in your car, or on a friend's stereo system, they won't sound the same. If your monitors boost the bass, your tracks will sound weak in the low end on other systems. Likewise, if your monitors are heavy in the midrange, your tracks' mids will sound scooped when played elsewhere. If the monitors are dark sounding or don't have enough highs, you'll tend to compensate by cranking the highs on your tracks, which will make them sound bright and harsh when heard elsewhere.

Passive vs. Active. There are two main categories of studio monitors: passive and active. Passive monitors require an external power amp, because they have no amplification built in. On the other hand, active monitors have electronics—including amplification and perhaps even processing such as equalization and a crossover—built in. The crossover splits the signal into separate high, low, and, sometimes, midrange frequencies. Each of these frequency bands is then routed to its own amplifier and speaker inside the monitor, creating a cleaner result than running everything through a single amp and speaker. A 2-way monitor splits the signal into two bands and has two speakers (a woofer or low-frequency driver, and a tweeter or a high-frequency driver). A 3-way monitor splits the signal into three bands and has three drivers—one for lows, one for mids, and one for highs.

It might seem as if a monitor with more drivers would be cleaner and better, but there is definitely a point of diminishing returns—because each of those splits increases the complexity of the speaker design. There can be problems at crossover points and in getting the multiple drivers to work well together—especially at close listening distances. For this reason, we rarely see studio monitors with more than three drivers. In fact, many monitors on the market are 2-way designs.

Near or Far? Another way to categorize studio monitors is by their intended use, or more specifically, the distances from which they are designed to be heard. *Far-field* monitors are intended for listening from a distance of 10 feet or more. They're typically quite large, with a lot of power. In commercial studios, these are the big monitors mounted in the front wall. Few of us have enough space in our home or project studios to be able to use far-field monitors.

Mid-field monitors are intended to be listened to from six to 10 feet away. Mid-fields are usually pretty good-sized monitors, often with a 3-way design, and they usually offer plenty of power. If your studio has a large control room or space, you may be able to use mid-fields to get a wider frequency response with much better low end than smaller monitors.

Near-field monitors are the most common type found in home and project studios. Also known as *close-field* monitors, they're designed to be heard from just a few feet away—usually three to six feet. Their advantages for home- and project-studio use include compact dimensions and volume levels that are more convenient for the environments most of us work in these days. Another big advantage of near-fields is that their close proximity reduces the room's acoustic influence on the sound you're hearing—which is an especially good thing if the room isn't well-treated acoustically.

Big vs. Small. Do you need massive monitors to get good low-frequency response? Typically, larger monitors with bigger speakers *are* better able to reproduce very low frequencies. The other aspect that's important here is power. There's a reason why bassists generally use higher-powered amps to compete with guitar amps: Lower frequencies simply require more power to emit a given volume from a speaker than midrange and treble frequencies do.

Larger monitors, such as a set of JBL LSR2328Ps ($700 street) can produce more bottom end and lower-frequency extension.

Studio monitors are *not* the place to skimp in your studio. Fortunately, even a modestly priced set, such as the M-Audio AV 40 ($149 street) can produce detailed, wide-ranging sounds.

That said, modern technology allows even smaller monitors to produce a surprising amount of bass. One approach that monitor manufacturers use to enhance low-frequency response is designing a port in the cabinet. A port is a specifically sized opening in the monitor housing that serves to redirect the sound waves from the back of the speakers out to the listener's ears. If the port is designed well, the sound waves from the back will reinforce those from the front, particularly in the low frequencies. This allows a smaller cabinet to produce bass response that is similar to that of a much larger cabinet.

That's all for this month, but we've got more to cover regarding monitors and monitoring. So be sure to come back next month!

MITCH GALLAGHER'S *latest book is* Guitar Tone: Pursuing the Ultimate Guitar Sound. *He is the former Editor in Chief of* EQ *magazine. In addition to being a writer, he is a freelance recording engineer/producer/mastering engineer, teaches music business and audio recording at Indiana University/Purdue University, and is Sweetwater's Editorial Director. www.mitchgallagher.com*

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GET MORE OUT OF YOUR FLANGER BY PETE CELI

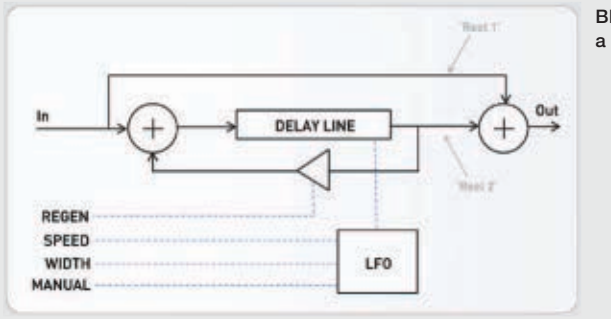
As sonic chameleons, flangers can create lush chorus sounds, airy harmonic textures, moody frequency swirls, sweeping jet-airplane swooshes, seasick pitch warbles, or sci-fi ray-gun blasts. However, if you don't have an understanding of what the pedal is actually doing, this tweakability can lead to frustration when you try to dial in a particular sound. Let's take a look at the basics and break down some of the mystery.

First, a little history. The flanging effect originated from a studio trick involving two synchronized tape reels playing identical source material. The second reel was forced out of sync by applying pressure to the tape-guide "flange," creating a varying delay relative to the unmolested first reel. When the two signals were combined, it produced a dramatic and chaotic sweeping effect. The introduction of bucket-brigade-delay (BBD) chips in the '70s opened the door to capture this same effect in a stompbox, with the BBD chip taking the place of the "flanged" tape machine.

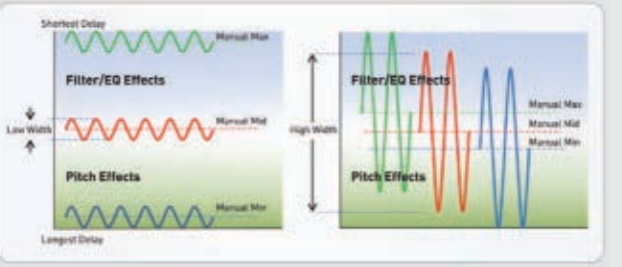
A low-frequency oscillator (LFO) replicates the varying delay time of the flanged deck. A typical flanger pedal has four knobs, and three of them—*speed* (or rate), *width* (range or depth), and *manual*—are related to the LFO (see the flanger pedal block diagram at right).

So what's up with the fourth knob? The *regen* (intensity or enhance) knob feeds some of the delay output back into the input. This control may have originally been added to compensate for the fact that the studio tape flanger trick could produce some extreme sounds by speeding up the flanged deck *ahead* of the original signal (creating what's sometimes called a "negative delay"), and then slowing it down to pass through zero delay time, whereas the pedal can only delay the signal by positive amounts. The regen knob doesn't produce this particular sound, but it intensifies the flanging effect and adds a bunch of sonic possibilities. Later pedals obtained the "through-zero" effect of actual tape reels by adding a short delay in line with the input signal, but we'll save that for another discussion.

The typical delay range of a flanger is about 0.5–10 ms. These delay times are heard as filter effects at the shorter end of the range (because frequency rises as delay times get shorter), and pitch effects (chorusing) at the longer times when combined with the input signal. This is the nature of *comb filtering*, which is what happens when a delayed version of a signal is added to itself. The three LFO controls determine how fast (speed), how much (width), and in what delay region (manual) the modulation occurs.



Block diagram of a flanger pedal.



LFO curves: With a low width setting, the manual knob determines the filter/pitch nature of the flange effect. With a high width setting, the width sweeps through filter and pitch effects, and the manual setting has only a small influence.

From a technical standpoint, the width knob sets the LFO amplitude, and the manual knob sets the LFO offset. Note that, as the width is increased, the manual control becomes less effective. When the width is at maximum, then the entire region of delay times is being used, so the manual control doesn't do anything. At the other extreme—with width at zero—there is no oscillation, just a fixed delay time that is adjusted by the manual control, which allows a physical sweep of the entire delay range.

With this information in mind, we can formulate some general ideas about how to craft particular sounds. Below are some starting points to help you explore the diverse sounds that a flanger is capable of. To add more variables into the mix, the LFO sweep shapes can be linear or logarithmic, depending on the flanger—and some flangers allow polarity changes on the feedback. Luckily, the same basic principles still apply.

Chorus-like sounds: A chorus doesn't have any regeneration, so set the regen to minimum. Set manual to its lowest setting for long delay times. Keep the width low, but not at minimum. (Remember, if the width is at minimum, the LFO is not oscillating—hence, there will be no modulation sounds.) If the effect is too pitchy, try reducing the width or the speed.

Jet flyby: Set a moderate speed. Turn the manual to halfway and crank up regen. Set width to the desired sweep range, then adjust manual to dial in the sweep region to taste.

Auto-wah: Set a reasonably fast speed and keep width low to stay in a limited region of delay times. Add some regen to enhance the filter resonance. Then, experiment with the manual control to tune the auto-wah frequencies.

Classic flanger sweep: A moderate speed with maximum width allows the delay line to sweep from the lowest to highest delay times, thus showcasing the underlying character of the flanger. Add some regen to taste.

Resonant filter: Set width to zero to "freeze" the LFO. Add a generous amount of regen to increase the resonance, and turn the manual knob to dial in the filter frequency.

Freq out: Set all controls to maximum. (As we mentioned earlier, with width at maximum, the position of the manual control is irrelevant.)

With this knwoledge and a little practice, you should now be able to use your flanger to dial in a lot of different sounds with authority. And don't forget the value of experimenting—turn knobs, play guitar, and have fun!

PETE CELI *is the DSP Engineer at Strymon.*

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THE ULTIMATE LUXURY: EXPERIENCE BY JOL DANTZIG

Most everyone has heard the term "boutique" applied to musical gear. Though it once signified unique items made in low numbers by small shops or individual artists, it's now merely a marketing term that even the biggest of the big throw around at will. The same goes with having a custom shop, which seems to be a required add-on for almost every factory.

Yet, above and well beyond the upper limits of custom, boutique, or limited editions, there exists an even more exclusive domain: luxury items. This stratum inhabited by items that few know—and even fewer own—is a business model that isn't taught in school. Instead, it is driven by the relentless search for expression. I'd like to think of luxury as something so well made and rare, that it is passed down through generations with its relevance unscathed. One such luxury item is experience. And while it cannot be bought, it *can* be shared.

Not everyone has the luxury of years of experience to reflect upon when considering a DIY amplifier (or guitar) project. This was hammered home when a friend who wanted to build a tube amp for his 14-year-old son recently approached me for input. Although the father is both an audiophile and no stranger to fabricating bike and motorcycle parts, trying to decipher the guitar speak found on the various amp-kit websites was trying his patience. So, I suggested they bring a guitar over to my shop's "tone pit" to audition some old-school amps. My thinking was that the first step should be determining the type of gain structure, and then deciding between the Euro-style EL output tubes and the 'murican-style 6V6/6L6 sounds. The reason for the hands-on test was because a guitar reacts differently with every amp—it was just a matter of finding a match.

My friend and his guitarist offspring arrived at the determined time with a gig bag in hand. The weapon of choice was a satin-black semi-hollow affair with two humbuckers and a fixed bridge—the kind of instrument you'd encounter in a mega guitar store or online catalog. It played well and the build quality was very tidy. And while I half expected the tuning to be dropped a few tones, it was in standard pitch. Also to my surprise, the young man's repertoire included a host of classic-rock styles—he'd obviously raided his father's music library.

This vintage 100-watt Marshall head sports English-made Mullard EL34 power tubes. If you ever get to play a similar rig—or even own one—you'll have the luxury of experiencing one of rock guitar's most fundamental sounds.

It was marvelous to see a young guitarist reaching back in time to learn what had come before he was even born. Zeppelin, Yes, and a slew of other bands were represented, along with some more current selections that fit the pattern as well.

When I asked him what kind of amp he was currently using, he explained that his rig was a modeling amp, which offered a wide variety of sounds. And from the way he said it, I sensed that he might not want to be locked down to a tube-fired, one-trick pony. After spending some time jumping from amp to amp, he began playing Hendrix's "The Wind Cries Mary." At that point, I suggested he plug my old Strat into a vintage 100-watt Marshall. Eureka! The synergy between guitar and amp elicited a saucer-eyed response from our young player, and his dad realized there was no turning back.

The point is not that modeling amps aren't good, or that old stuff is better. It's just that some things have to be experienced to be understood and believed. And it takes dedication and the will to seek out practical contact with the facts. Techniques and solutions that are a mystery to you now may become clearer through articles like this one, but they are not a substitute for real-world knowledge. Instead, they should serve as a guide that encourages you to try as many things as possible. Over time, you will achieve the luxury of *knowledge*—something that can't be found in a boutique.

I suggested he plug my old Strat into a vintage 100-watt Marshall. Eureka! The synergy between guitar and amp elicited a saucer-eyed response from our young player.

JOL DANTZIG *is a noted designer, builder, and player who co-founded Hamer Guitars, one of the first boutique guitar brands, in 1973. Today, as the director of Dantzig Guitar Design, he continues to help define the art of custom guitar. To learn more, visit guitardesigner.com.*

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A FLATTOP IS BORN BY JEFF HUSS

Building an acoustic guitar may seem like an extremely complicated process, but it can be broken down into a series of chronological steps. While it would take a book (and there are some good ones out there) to describe how to create this fairly simple, yet elegant machine in more detail, I'd like to give you an overview of the process with this month's column.

Because we build our bodies first, we start by dimensioning the wood for our top, back, and sides. Choosing the top wood for its stiffness-to-weight ratio, we generally make our tops from spruce or cedar. This means these woods are light enough to not act like a "tone sink," but strong enough to withstand the incredible amount of tension they will be subjected to when the guitar is strung up. While back and side woods color the tone that the top produces, the majority of the sound is the result of the construction choices made for the top.

The top and back "plates" are thickness-sanded to dimension after they have been joined in a book-matched pattern. We cut a soundhole into the top, install a rosette, and then profile them—a process that creates a smooth, flat surface where the top meets the rosette. Next, we brace the plates with spruce bracing. We use a traditional "X" pattern for our tops and a simpler, ladder-brace pattern for the backs. At this point, we profile the sides to a uniform thickness and bend them to shape using a bending jig and the help of a little heat and moisture.

After bending the sides, we place them into a mold that will house the body throughout the construction process, and install spreaders to hold the sides firmly against our mold. Now we'll glue the head block, tail block, and kerfed linings into place to create the rim onto which we glue the top and back. When the glue is cured, we remove the spreader mechanism through the soundhole, pull the rough body from the mold, trim the edges, and finish the decorative purfling and binding work. After the scraping and sanding work is finished, the body is complete and ready to be paired with a neck.

Necks begin as a large plank of hardwood—generally mahogany—that is sawn into smaller billets yielding two, one-piece necks. These are rough sawn into neck blanks on the band saw, routed for a truss rod slot, and cut on an angle for the peghead. After we glue the veneer for the peghead face and shape the peghead, we drill the holes for the tuners. Using a jig, we then measure the angle of the body where the neck will attach, and that angle is transferred to the table saw where the neck heel is cut to correspond to the body. After cutting, we drill and install our corresponding index holes, bolt holes, and inserts in the body and neck heel for the bolt-on neck joint.

With a very steady hand, luthier Jeff Huss preps a fretboard for its side-position markers.

Our fretboards—made from ebony or rosewood—are shaped, slotted, radiused, and bound. They are indexed onto the neck blank, and the truss rod is installed and then attached with epoxy. The neck is now shaped, a nut slot is cut, and the neck is final-fitted to the body to ensure proper playability. Inlay work is then done on the fretboard and peghead, and we fit the nut, install side-position markers, and sand out the body and neck and prepare them for the finish work.

Choosing the top wood for its stiffness-to-weight ratio, we generally make our tops from spruce or cedar. This means these woods are light enough to not act like a "tone sink," but strong enough to withstand the incredible amount of tension they will be subjected to when the guitar is strung up.

At this point, some woods, such as mahogany, are stained, and any open-pored woods are filled with a paste wood-filler that lets us apply a thinner, final finish. Then we spray the topcoats and do leveling work between coats to ensure a flat and thin finish. After it's cured, the finish is leveled once again before we fine-sand and buff all the finished surfaces to bring out a bright luster.

Once the finish work is complete, the assembly can begin. The neck and body are bolted together, the fretboard extension is glued down, and the bridge is glued on. The guitar is mounted on a workbench that simulates string tension, and the fretboard is prepared for the fretwork. Frets are then installed, trimmed, leveled, and polished.

After the nut has been trimmed, polished, and slotted, we install it. Next, the tuners are mounted, the saddle is shaped and inserted into the bridge slot, and the pickguard is attached. And finally, we string up the guitar, adjust the action, and perform any necessary tweaks. Our guitar is now ready to begin what we hope are many, many years of making music.

JEFF HUSS, *co-owner of Huss & Dalton Guitar Company, moved to Virginia in the late '80s to play bluegrass. He and his business partner, Mark Dalton, formed their company in 1995. Since then they've earned world-wide recognition for their high-end, boutique guitars and banjos.*

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REDUCING OUTPUT IN A CARVIN BELAIR 212 BY JEFF BOBER

Hi Jeff,
After reading your articles over the past year, I'm convinced your advice will help me make some good decisions. I recently did some "horse trading" and ended up getting a Carvin Belair 212 with Celestion Vintage 30s for $40. It is stock and the clean channel [channel 1] sounds great, but the dirty channel [2] is muddy.

I practice in my basement, rehearse with my band in the drummer's basement, and gig everything from small bars to large private clubs. Here's what I'd like to do: Clean up the dirty channel and have a way to switch or reduce output to allow for use in small rooms. I've done some research and found some mods that promise to do this, but I want the opinion of an expert. I've attached the mods in PDF format for your convenience. (Also, does altitude have an effect on tubes? Most of the bars here are at about 5,000 feet, but we have some clients that have a bar at almost 10,000 feet.)

Thank you,
Joseph Centeno

Hi Joseph,
Thanks for reading, and for writing. Hopefully, my column and the rest of *Premier Guitar* has given you some insight, enjoyment and useable information. I hope to be able to do that here, as well.

I've read all the modifications you've supplied me with, but lacking the space to print them all along with my comments, I will simply address each style modification one at a time and give you my take on them. (To see PDFs of the mods Joseph sent, visit premierguitar.com/sep2012.) Let's get to it!

Clipping Diodes. Your first concern was to alleviate the muddiness of channel 2, and for this you submitted a mod that would remove the clipping diodes (D1, D2, D3, and D4) from the circuit. This is probably a good idea. These diodes are placed at the grid of a preamp tube—in this case, the third gain stage V2A—to artificially cause the waveform to clip at a predetermined level. This technique is used to give the illusion of more gain or overdrive, but it can also affect the tone and responsiveness of the amp. A similar technique was used in a particular manufacturer's Silver Jubilee amps, which are rumored to have given a particular top-hat-wearing guitarist his unique tone, but that's probably not what you're hearing or interested in hearing here. Remove them, and the dirty channel should sound more natural and open. However, do not forget to install the recommended resistor in their place, or the tube will not operate properly. Be aware that this channel may now appear to have less gain, and you may need to increase the drive control setting to compensate.

Tone-Stack Modification. By cleaning up some of the darker and probably overly compressed distortion in channel 2, you are more than likely looking to make it an overdriven extension of the clean channel. This mod should re-contour the tone stack and help make the dirty channel sound more like the clean one, because the schematic reveals that both tone stacks are identical, though each uses somewhat different component values. What's immediately noticeable in the mod you're considering is the difference between the values of the R15 and R16 resistors. In the dirty channel, resistor R15 is a 47k Ω and R16 is a 22k Ω, while the corresponding resistors in the clean channel, R4 and R15, are 150k Ω and 100k Ω, respectively. Initially, it appears that changing these two dirty-channel resistors to match their counterparts in the clean channel should result in identical-sounding tone stacks. However, as the modification later suggests, this may not be the case. This is partly due to the fact that the channels aren't identical—the clean channel's tone stack comes immediately after the first gain stage, but in channel 2 it is placed after the third gain stage. The other difference is that the second halves of the tone stacks are presenting different loads on the signal, causing a different frequency response. While the clean channel utilizes a 120 pF treble capacitor and a 1M pot, the dirty channel uses a .0022 µF cap and 100k pot, respectively. My recommendation would be to start by using the suggested values of R15 (100k) and R16 (47k) and see how you like the results. If channel 2 still sounds dark, try changing the value of C21 from a .0022 µF to a 100 pF cap. If you want to go a step further, change the treble pot from 100k to the same 1M value found in the clean channel.

PG reader Joseph Centeno scored this Carvin Belair 212 with Celestion Vintage 30s for $40. Here, EAST Amplification's Jeff Bober guides Centeno through some of the Belair mods he found online.

Cathode Resistor Bypass Caps. This modification deals with increasing the gain of the second and third gain stages in the dirty channel. Adding a bypass capacitor in parallel with the cathode resistor of a triode gain stage will increase the AC gain of that stage, so this should help make up for any apparent gain lost by the removal of the clipping diodes. But be careful here—you *can* overdo it! The modification suggests installing 4.7 µF capacitors across R10 and R13. The larger the capacitor value, the more low frequencies are amplified, and a 4.7 µF cap is a pretty full-frequency cap. Some amps use cathode caps from 25–250 µF. This will increase the low-end response of the particular gain stage, but it is only useful up to a certain point. Unless the amp is capable of reproducing considerable low end—which is determined by other stages in the amp, as well as its output configuration—the effect tends to manifest itself in a "flubby," loose sound. Generally, the more gain stages in the circuit, the more this becomes apparent, so don't go overboard here. If adding these caps muddies up the sound at higher gain settings, you may want to consider smaller values, such as a 1 µF, a 0.68 µF, or even a 0.47 µF. The other option would be to eliminate one of the caps. Try each approach and see which result you like better.

That's it for this month. Next month we'll finish up with a couple more mods, as well as a power-reduction suggestion. Till next time!

JEFF BOBER, *one of the godfathers of the low-wattage amp revolution, co-founded and was the principal designer for Budda Amplification. Jeff launched EAST Amplification in 2010, and he can be reached at pgampman@gmail.com.*

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THE MODDED ELDRED ESQUIRE WIRING BY DIRK WACKER

Now that we've investigated Mike Eldred's wiring scheme ("The Eldred Esquire Wiring," August 2012), I'd like to show you a modified version of this circuit I developed for my personal Esquire—the one I play onstage, which is nicknamed the "Luthercaster." More about this Esquire and its complete wiring diagram next month.

The basic Eldred wiring is very useable and flexible, and that's the main reason why so many pro Esquire players choose it. Some years ago, I wired my Esquire this way too. But after some time, I realized it's not exactly what I need onstage when playing with my local Johnny Cash tribute band. So I started experimenting with the wiring, tweaking it to meet my personal needs, and came up with this version. It's still unnamed, so if you have a cool suggestion, please email me.

It's not a complicated modification of the Eldred wiring, but very effective. It affects switching positions #1 and #3—position #2 is identical to the original Eldred wiring. Here's the switching matrix of my modified version of the Eldred Esquire wiring:

Switching position #1. This rear position is true bypass. The guitar's single pickup is routed directly to the output jack, with the tone and volume control removed from the signal path for maximum twang and spank, and to provide a good solo boost.

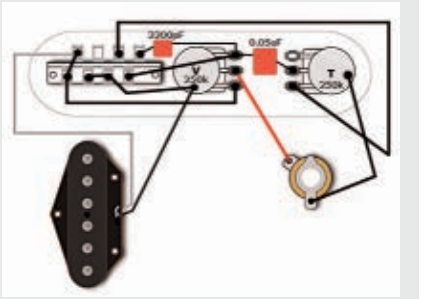
Switching position #2. This middle position is also the same as on a standard Esquire, with the pickup signal routed through the volume and tone controls. It sounds a little warmer than position #1.

Switching position #3. In this front position, the pickup is routed through a single, small capacitor and volume control, and the tone control is bypassed.

To sum up the differences compared to the original Eldred wiring, my version sports a true-bypass wiring in position #1 (rather than routing the pickup through the volume control and bypassing only the tone control). For position #3, I chose a different value for the capacitor, and I also chose a different type for the standard tone capacitor that is connected to the tone control. Let me explain what I did and why.

True bypass in position #1. This option connects the pickup directly to the output jack, completely bypassing the electronics. In this position, you hear the pure sound of the pickup. Personally, I think the difference between the pickup connected to both controls and connected to only one control, as in the standard Eldred wiring, is clearly audible, but also kind of subtle. By comparison, the sonic difference between the pickup connected to both controls and true bypass is huge.

As you know, there aren't many Johnny Cash songs that feature an overdriven guitar sound, and most solo parts are played clean and loud. This was the main idea behind this modification. I play the rhythm part in position #2, so I can fine-tune every song with the volume and tone control. For the solo, all I have to do is switch to position #1 and I have exactly the additional amount of volume I need to cut through the mix. To return to playing rhythm, I simply flip back to position #2 after the solo. This works like a kind of clean solo boost, with position #2 being my rhythm preset. No messing with the controls is required to get a good solo tone.



The modified Eldred Esquire wiring. Any ideas for a cool name? Illustration courtesy of singlecoil.com

For the solo, all I have to do is switch to position #1 and I have exactly the additional amount of volume I need to cut through the mix.

Different capacitor value for position #3. Instead of the original 4700 pF value, I chose a slightly smaller 3300 pF value and installed a 225P series Orange Drop cap on the 3-way switch. I chose this smaller value because I think it enhances the vocal quality of this switching position, and also makes it perfect for some old-style garage rock sessions, giving you an early '50s guitar tone you can hear on countless old records.

As another benefit, I can use this position as a second preset for songs like "I Walk the Line," where Luther Perkins chose a very similar tone to play his part. With their typical mid-scooped tone, Orange Drop caps work perfectly for this, as they support the vocal qualities of the tone. Physically, the 225P series is much smaller than the common Orange Drop series for tube amps—this is because of their smaller wattage. It's much easier to place them into a Telecaster control cavity than the big 600V types. Yet in a passive circuit, they offer the same tone.

Different capacitor type for the tone control. The standard Eldred wiring uses a modern 0.047 µF film/foil cap on the tone control, and that's what Mike Eldred prefers. I experimented a lot with the tone cap in this circuit and ended up with a new-old-stock (NOS) 0.05 µF "high voltage" ceramic cap from the early '60s, manufactured by the Sprague company. That's exactly the cap Fender used in the '60s as a tone cap in their Strats, Teles, and some other instruments. The difference is that Fender used a 0.1 µF value, while I agree with Eldred, that a lighter 0.05 µF value is much more useable. This cap offers an unheard amount of harmonic overtones (mostly at 2k and 3k) and are simply perfect for this circuit. At least, that's my two cents.

As always, this circuit is not set in stone! Experiment with different cap types and values to customize the wiring to your personal taste.

So what do you need to set up this switching? Not much: a 3300 pF (0.0033 µF) capacitor, a 0.05 µF tone cap (or 0.047 µF for modern caps), and some wire—that's it. Basically, you remove the standard Eldred 4700 pF cap, throw in the new 3300 pF capacitor, change the tone cap, and move some wires. In general, this wiring sounds best with two 250k pots and a traditional Esquire/Telecaster bridge pickup.

Stay tuned for next month's column where I'll show you the complete wiring diagram of my personal Esquire, plus share some secrets on how to achieve an authentic Johnny Cash tone with an Esquire—it's an email question I receive a lot. Until then, keep on modding!

DIRK WACKER *lives in Germany and is fascinated by anything related to old Fender guitars and amps. He plays country, rockabilly, and surf music in two bands, works regularly as a session musician for a local studio, and writes for several guitar mags. He's also a hardcore guitar and amp DIY-er who runs an extensive website—singlecoil.com—on the subject.*

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CHOOSING MAGNETIC BASS PICKUPS BY HEIKO HOEPFINGER

Last month we looked at magnetic bass pickups—their shapes and basic functionality ["From Strings to Voltage," August 2012]. This was an overview of historical pickups and how they've evolved over time. Our next step is to consider some guidelines that will help you when shopping for a new pickup, if you're interested in experimenting with sound.

So where should you start?

You might ask yourself, what do I expect from my pickup? Once you've stated your goals, you can investigate how manufacturers describe their products and then figure out how your goals and these descriptions fit together. Both tasks can be tricky: Tone is hard to describe with words, and it's tough to sort through and differentiate the *huge* amount of pickups on the market.

As a player, you probably prefer one of the two main pickup categories—single-coil or humbucker. You might even know if you prefer active or passive pickups, and have a sense of how they work with the musical styles you're into. But beyond that, the adjectives rear their heads. As a result, most bassists simply end up playing whatever their hero or best friend uses.

For manufacturers, the standard approach is to give customers a bloomy tonal description and do some name-dropping of both artists and musical categories. The technical data usually comes at the end of the catalog or is buried in a tab on the website. Typically, the info is minimal—pickup size and DC-resistance.

DC-resistance? The common understanding is that a low resistance creates more treble and a lower output, while a higher resistance produces more bass and a louder sound. Unfortunately, this only applies if you use the same magnets, wire, and construction. Change one element and you're—once again—lost.

It is absolutely beyond me why manufacturers don't even try to give their customers a better impression of what to expect from their products—and this emotional marketing is typical for the whole industry. There's nothing wrong with the currently available pickups, but the way they are marketed uses a combination of hype and PR. The technical info that really describes them is hidden.

"How does this pickup sound?" As a musician interested in technical matters, you should know this familiar question is misleading. A pickup doesn't sound! It simply converts string movement into an electric signal. For a manufacturer, it's relatively easy to measure electrical response and put this into a graph. Known as response curves, these graphs give us a much better idea of how a certain frequency might get translated into a signal. We see the height and width of the resonance peak (also known as "Q") and can translate any given frequency curve into a corresponding signal—or at least its strength. It's not the whole picture, but it would be a beginning.

Fig. 1 You can install the USAB Ultra Slim Acoustic Bass pickup almost anywhere under the strings without routing. **Fig. 2** As opposed to typical voltage-driven pickups, the passive Alumitones use a current-driven design. Photos courtesy of Lace Musical Products.

If manufacturers consistently provided this data, customers would learn to read and compare these curves and at least get some useful info. Players are savvy enough to understand that the full magic of a good sound can't be plotted into a 2D diagram, while the manufacturers could up their game by using real specs. Of course, dealing with better-informed customers creates a few risks: Customers might question the current choice of pickup models and ask for more variety.

The only way most of us choose a new pickup is through visual appeal, a friend's recommendation, or personal experience. This can be a disappointing and expensive course. What if we learn that the electrical and tonal differences of various pickups are not that big? Might we then focus on other factors?

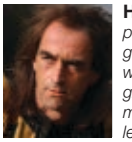
In my previous columns, we discussed how load and capacitance have a huge influence on pickup functionality. What about the string-to-pickup distance, not to mention where the pickups are placed on the body?

Let me introduce two special pickups: One is the USAB Ultra Slim Acoustic Bass pickup, and the other is the Alumitone, both made by Lace Musical Products. The USAB's obvious feature is that it's slim—just around 8 mm (**Fig. 1**). It fits well between the strings and body of almost any electric bass without any routing. By playing around with its position, you can tap into a huge fountain of knowledge. Even if you later decide to go with a more standard pickup on a new instrument, this knowledge will still serve you well because the tonal character of a given position remains valid.

The Alumitone J and P models are "current-driven" pickups. Most pickups are "voltage-driven," meaning they use a lot of copper wire turns around the magnet to induce a usable voltage. The passive, current-driven Alumitones use 95 percent less copper wire and they're noiseless, even though they use just one coil to pick up the string movement. This low-voltage signal runs into a transformer, which converts it to a higher voltage. The principle is not new, but Lace deserves credit for making this design available to players again. You'll recognize the Alumitones' obvious advantage when you hold them, as they weigh about 70 percent less than a standard voltage-driven pickup.

They also sound slightly different from classic pickups, but I won't try to describe the sound with those bloomy adjectives. Whether these two different designs produce the sound you expect ... well, that's another discussion.

As long as manufacturers leave customers in the dark by offering choice without giving facts, I'd recommend either staying with what you have or getting prepared for some serious experimentation. I'm sure there are other specialized pickups out there, so feel free to send me info on any that catch your interest. Next time, we'll explore non-magnetic alternatives. See you then.



HEIKO HOEPFINGER *is a German physicist and long-time bassist, classical guitarist, and motorcycle enthusiast. His work on fuel cells for the European orbital glider Hermes got him deeply into modern materials and physical acoustics, and led him to form BassLab (basslab.de)—a manufacturer of monocoque guitars and basses. You can reach him at chefchen@basslab.de.*

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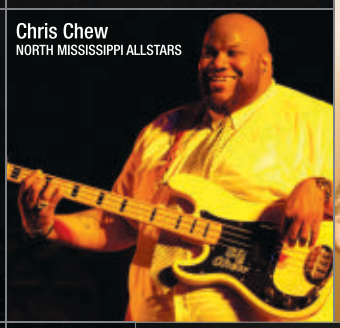

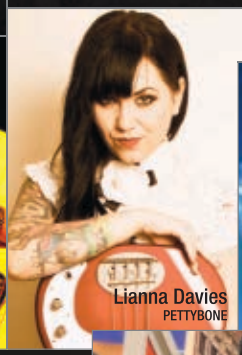

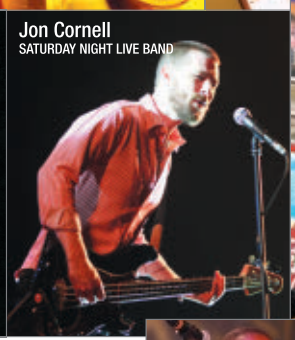

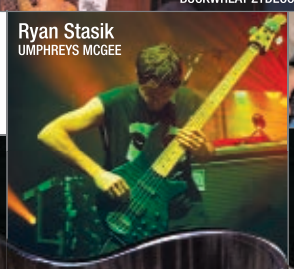

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1970s EPIPHONE EA255 BY WILL RAY

I go to a lot of yard sales. Sometimes I get lucky, sometimes I don't. A few weeks ago, I got a little lucky. A friend of mine was taking part in a neighborhood yard sale and invited me to visit. I had been going to yard sales all morning and didn't get there until a little after noon, so a lot of sellers were thinking of calling it a day by then. There were several guitars for sale out there. One was an overpriced Ovation, the other was this Epi guitar. It had a sign that said "$150 or make an offer." It had no strings—usually a bad sign—and the tailpiece was missing. But the seller said the tailpiece was in the case. *Aha*—a hardshell case was also included. That sweetened the pot a little more. The tailpiece turned out to be a 2-piece Frequensator. I've always liked these tailpieces because they look cool.

I carefully examined the guitar. It had gold-plated parts, including Grover tuners—another good sign. It looked like it had been stored in a damp environment—*not* a good sign—because all the gold parts were corroded and the frets were badly tarnished. The neck had a slight backbow, and that worried me, too. The owner admitted the guitar also had wiring problems, and the jack had fallen off somewhere inside the guitar's body. I was about to pass on it, but something made me want to save this poor instrument from the grave.

So I started to walk away but offered the seller $75, acting like I wasn't that interested (yep—that's **Bottom Feeder Tip #221**). He wanted to go home and took the $75. Now, we could both go home.

A couple of days later, I took the guitar to Jack Dillen, my go-to guitar repairman in Asheville, North Carolina. I thought about just selling off the guitar's parts if it was going to be an expensive endeavor to restore it. Jack said we first needed to find the jack inside the guitar and assess what worked—if anything. Jack is such a pro and has all these tricks up his sleeve. I watched him methodically fish the jack out of the f-hole, spray contact cleaner into the pots and selector switch (without having to remove any of them), test all the parts, put the tailpiece back on correctly (after researching which way to arrange it), string it up with a set of .010s, and adjust the truss rod (fortunately, it *did* turn).

Jack took a guitar that was in pieces and had it up and running just inside of an hour. Impressive—and my repair bill was only $40! For $115 total, I had a nice-playing 335-style guitar.

Bottom Feeder Tip #2877: Get to know a good guitar tech. They can really save the day.

The Matsumoku company made these EA255s in Japan for Epiphone from 1976–79. They usually sport gold-plated parts, humbuckers, jumbo frets, lots of binding, and a bolt-on neck. They're not particularly collectible, but they do have their own sound. This one has a lot of spank and attitude when plugged in.

So is it a keeper? Maybe. The verdict is still out. But I'll say this—it's an unusual guitar and now it plays great. Plus, I feel like I helped bring a guitar back from almost certain death and to a playable state again. And that feels good. Guitars are made to be played, not parted out!

1. An Epiphone EA255 made by Matsumoku in the late '70s.

2. This guitar sports Epiphone's distinctive Frequensator tailpiece.

3. Gold-plated Grovers—cool!

4. Unlike vintage USA Epiphones, this thinline has a bolt-on neck.

WILL RAY *is a founding member of the Hellecasters guitar-twang trio. He also does guitar clinics promoting his namesake G&L signature model 6-string, and produces artists and bands at his studio in Asheville, North Carolina. You can contact Will on Facebook and at willray.biz.*

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1968 FENDER TELECASTER CUSTOM AND 1967 FENDER SOLID STATE SUPER REVERB

A 1968 Telecaster Custom with olympic white finish and maple fretboard.

BY DAVE ROGERS, LAUN BRAITHWAITE, AND TIM MULLALLY

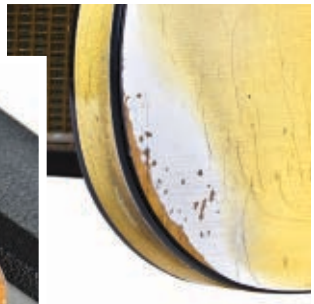
Introduced in 1959, the Fender Telecaster Custom was a special deluxe version of the regular Telecaster. The Custom's sunburst alder body had white binding around the top and back that was meant to provide a more sophisticated look than the standard blonde finish Fender used on ash-body Teles.

The 1968 Telecaster Custom pictured this month has a custom olympic white finish with black binding (black binding was used occasionally for a light-colored guitar). The body is finished with a thick-skin polyester base coat, which was new to '68. The maple neck with separate maple fretboard still has a traditional Fender nitrocellulose lacquer finish, but by '69 polyester-finished necks became standard. The headstock boasts the bold black CBS logo, which was first seen on Customs in '68. The 1968 list price for a Telecaster Custom was $259, plus $58 for a case. A maple fretboard was an extra 5 percent, as was the custom color. The current value for this well-used Tele is $10,000.

Looking much like a piece of the Starship Enterprise's transporter, a 1967 Fender Solid State Super Reverb stands behind the Tele. Fender's solid-state amp line was developed in 1966 when most electronic companies were replacing tubes with transistors. Although pursuing solid-state technology was a logical move, these early attempts failed to account for the nuances of tube interaction with a guitar and player. Compared to tube versions, the solid-state amps were thought of as sounding "tinny" and sterile. These transistor amps were also unreliable and prone to complete breakdown. While other late-'60s companies like Acoustic and Kustom achieved success with solid-state amps, Fender gave up on its first endeavor in 1971. The 1968 list price for a Solid State Super Reverb was $500. The current value for one in excellent condition is $400.

You can find virtually everything you need to know about Fender Telecasters in *The Fender Telecaster* by A.R. Duchossoir. Detailed information on Fender amplifiers can be found in *The Soul of Tone: Celebrating 60 Years of Fender Amps* by Tom Wheeler, and also in *Fender Amps: The First Fifty Years* by John Teagle and John Sprung.

Original price: 1968 Custom Tele, $259 (maple fretboard and custom color each cost an extra 5 percent), plus $58 for hardshell case. 1968 Solid State Super Reverb, $500.
Current estimated market value: 1968 Custom Tele, $10,000; Solid State Super Reverb, $400 in excellent condition.



ABOVE: Fender's rare black binding appeared on some light-colored Customs. **LEFT:** The bold black CBS logo first appeared on Customs in '68. **BELOW:** All the signs of a well-played guitar.

DAVE'S GUITAR SHOP
Dave Rogers' collection is tended by Laun Braithwaite and Tim Mullally and is on display at:
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Photos by Mullally and text by Braithwaite.

MUSIC MAN 112RD-50 COMBO BY ZACHARY FJESTAD

Hey Zach,
I have an old Music Man amp and I've always wondered about the connection between Music Man and Fender amps. They look similar and I heard that they are really Leo Fender amplifiers. Can you give me a little history about this amp and tell me what it's worth today?
Thanks!
Carl in Phoenix, Arizona

Hi Carl,
There are many ties between Fender and Music Man, but the story isn't as clear-cut as Leo Fender simply building Music Man amps. Let's briefly touch on the history of Music Man.

As we all know, Leo Fender sold Fender to CBS in 1965. As part of the deal, there was a clause that he would not be involved in the music industry for 10 years (though he did consult with Fender for a few years after the sale). In 1972, ex-Fender vice president Forrest White and ex-Fender sales representative Tom Walker formed a new guitar and amplifier company. Leo Fender served as a silent partner, which complied with his non-compete clause. The company was initially called Tri-Sonics, Inc., changed to Musitek, Inc. in 1973, and then finally settled on Music Man in 1974.

Leo had another business called CLF (Clarence Leo Fender) Research that produced guitars and basses for Music Man. And just a few miles down the road, Tom Walker and his crew built the amplifiers at the Music Man factory. These were essentially two different entities—Leo really didn't have anything to do with amp production or design. Music Man thrived during the mid- to late-1970s by building some of the most innovative amplifiers of the day. These hybrid combos and heads employed both tube and solid-state components.

Unfortunately, the good times were short-lived for Music Man. Quality control problems with the guitars and basses produced by CLF cost Music Man dearly. Communication and relationships also became strained between the three founders of Music Man (it was no secret that Forrest White and Tom Walker did not see eye-to-eye). White was essentially ousted from management, and Walker couldn't get CLF Research to improve the quality of their guitars.

In 1981, Leo Fender and George Fullerton founded G&L Guitars, which were also produced by CLF Research. Leo was essentially building the same guitars for competing companies! Priority was naturally given to G&L guitars, and the downward spiral of Music Man had begun.

At the time, Music Man produced a variety of amps, with their 50-watt series being the smallest, growing to 75, 100, 130, and 150 watts as the largest. Their offerings included combos, heads, speaker cabinets, and a line of bass amplifiers. After ceasing amp production at the end of 1983, Ernie Ball (a good friend of Tom Walker) bought Music Man in the spring of 1984. And though they have been producing guitars ever since, Music Man amplifiers have been mothballed up to this point.

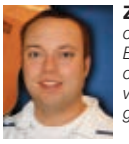
As stated before, Music Man amps used a hybrid chassis, producing one of the first amps to incorporate both technologies. The preamps either combined one preamp tube (usually a 7025) with solid-state components, or were entirely solid-state. The power-amp section sported either 6L6s or the seldom-used 6CA7. Because the company designed their amps to operate tubes at a lower temperature to prolong life, that may explain the use of the 6CA7.

Music Man thrived during the mid- to late-1970s by building some of the most innovative amplifiers of the day. These hybrid combos and heads employed both tube and solid-state components.

Based on their features, Music Man amps were very practically named. The model name provided the size and number of speakers, the type of chassis/features, and the power output—all fitting on the speaker grille! The 112RD-50 model name of your amp indicates that it has a single 12" speaker, a reverb/distortion chassis, and 50 watts of output power. It features the hybrid-tube chassis with a single 7025 preamp tube and two 6L6 power tubes, two channels (each with independent volume, tone, and bass controls), and gain and reverb controls on channel 2. Channel 1 also has a bright switch, while channel 2 boasts a limiter switch. Today, your 112RD-50 is worth between $550 and $650 in excellent condition.

Music Man amps were highly regarded when they were released and they continue to be a popular, yet cost-effective choice for vintage guitar amplifiers.

LEFT: The 112RD-50 combo from Music Man is one of a number of amplifiers the company manufactured until ceasing amp production in 1983. **RIGHT:** This 2-channel 112RD-50 houses a 12" speaker, a 7025 preamp tube, and a pair of 6L6 power tubes.



ZACHARY R. FJESTAD *is author of Blue Book of Acoustic Guitars, Blue Book of Electric Guitars, and Blue Book of Guitar Amplifiers. For more information, visit bluebookinc.com or email Zach at guitars@bluebookinc.com.*

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DigiTech by HARMAN

REPLACING THE SOUNDBOARD ON A 1977 MARTIN D-35 BY JOHN BROWN

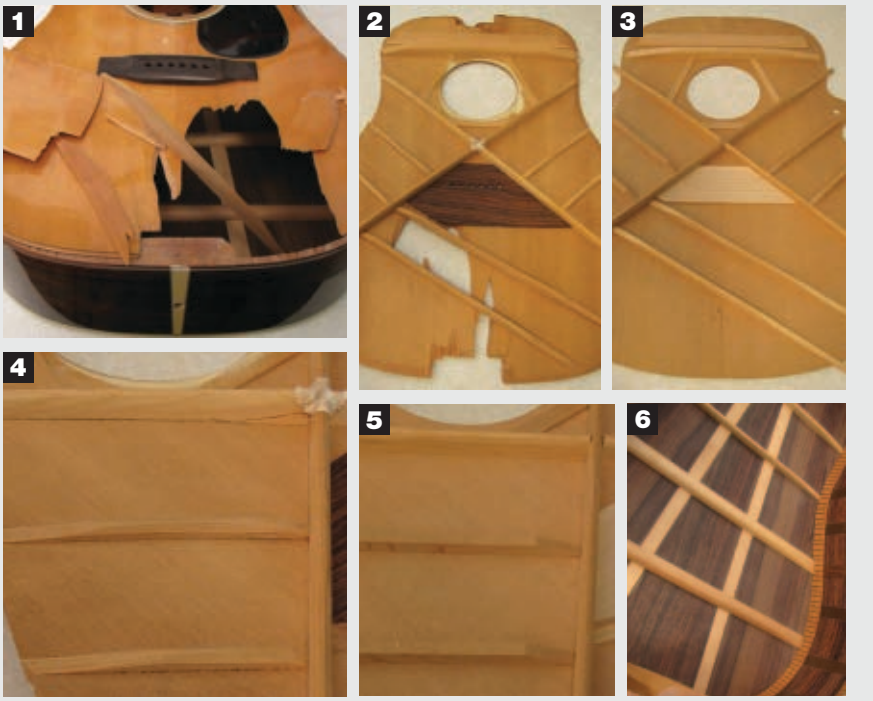
This 1977 D-35 arrived at our shop with a big hole in its Sitka spruce soundboard and a bag of miscellaneous broken braces and slivers of spruce top wood. Of course, I was curious to know what had happened, but I was simply informed that someone had expressed themselves a little *too* much. The good news was the neck and fretboard showed no signs of damage, nor did the East Indian rosewood back and sides. Clearly this was a guitar worthy of being saved and not just laid to rest or parted out.

For those not familiar with the D-35 or the era it was built in, here's some background: Martin introduced the D-35 in 1965 and it was the first Martin model with a three-piece back. This design reflected a shortage of Brazilian rosewood that was wide enough to make a two-piece, dreadnought-style back. In addition to the three-piece back, the D-35 included a bound fretboard and black-and-white purfling on the sides adjacent to the binding.

Martin had concerns about the three-piece back's effect on tone, so as a part of their research, Martin luthiers made a few guitars using variations of the company's different top and back braces. The builders concluded that using 00 top braces and 000 back braces worked best, and this resulted in the D-35 design we know and enjoy today.

The '70s were tumultuous times for Frank Martin and the company, even though 1971 came with a record-breaking increase in production. The change from Brazilian to East Indian rosewood didn't concern the buyers, as Martin's sales weren't slowing down. From the success of this boom, Frank Martin reached out and found other financial adventures to pursue, which for the most part never panned out. Towards the end of 1977, Martin employees who worked on the factory floor crafting the instruments went on strike. During this time, Martin's office and management staff had to step up to those empty work benches and start building guitars.

With its history in mind, I carefully examined this D-35. There are times when an original soundboard can be restored—after warping, cracking, or receiving a mild blow, for example. In the vintage world, you want to preserve the instrument and keep everything original whenever possible. However, after diagnosing the damage, I concluded that the soundboard was too far gone and that the guitar would be much better off with a replacement top.



1. A close-up of the violated and damaged 1977 Martin D-35. **2.** The anatomy of the original soundboard. **3.** Martin's replacement soundboard. **4.** The original top's finger braces. **5.** The finger braces on Martin's replacement top. **6.** Inside view of Martin's legendary craftsmanship. This '77 D-35 is extremely clean.

The first step was to remove the ebony bridge and soften the glue joint of the fretboard extension using Stewart McDonald's bridge heater and fingerboard iron (item #4607 from stewmac.com). Then I removed the neck by applying steam into the dovetail joint while using the neck joint steamer (item #4059) to soften the glue in the pocket.

At this point, I traced out the top to give me a reference for replacing it later on. Then starting at the dovetail, I removed the top binding using a hair dryer and channel spatula. (Had the original binding not been damaged, I would have used a delicate procedure for removing the soundboard while leaving the binding attached to the rib.) Now with the binding off, I used a razorblade and chisel to separate the soundboard from the sides, while being careful to avoid splintering or loosening the kerfed lining.

I decided to use a replacement soundboard I'd purchased from Martin more than 10 years ago. Looking at the original '77 top and its newer replacement, I noticed a few obvious differences. The original had the larger rosewood bridge plate that Martin implemented in 1969, whereas the replacement had a smaller but very stout maple bridge plate. The finger braces on the original soundboard are trimmed leaner, and I decided I'd shape the replacement top's braces to be more like the original. I felt this would help the top respond better to the string vibrations, and not obstruct the glorious tone with a stiff soundboard.

Having taken a very close look at the exterior and interior of this D-35, I believe it exemplifies Martin's legendary quality. Who knows? Maybe this was the last guitar to be built by the craftsmen in 1977 before they went on strike. Perhaps this was their final statement—a way of showing build quality as it ought to be.

Next month, we'll discuss attaching the replacement soundboard to the Martin D-35 body.

JOHN BROWN *is the inventor of the Fretted/Less bass. He owns and operates Brown's Guitar Factory, a guitar manufacturing, repair, and restoration facility staffed by a team of talented luthiers. His guitar-tool and accessory designs are used by builders all over the world. Visit brownsguitarfactory.com or email John at info@brownsguitarfactory.com.*

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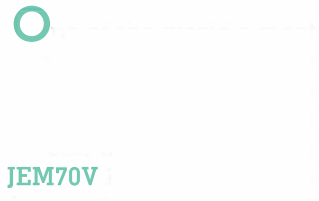
*"I've always been attracted to this color, **Sea Foam Green**. It has a nostalgic overtone to it and it makes a beautiful color for a Jem. The frequency of the color resonates with the creamy tone of the guitar."*

— SteveVai



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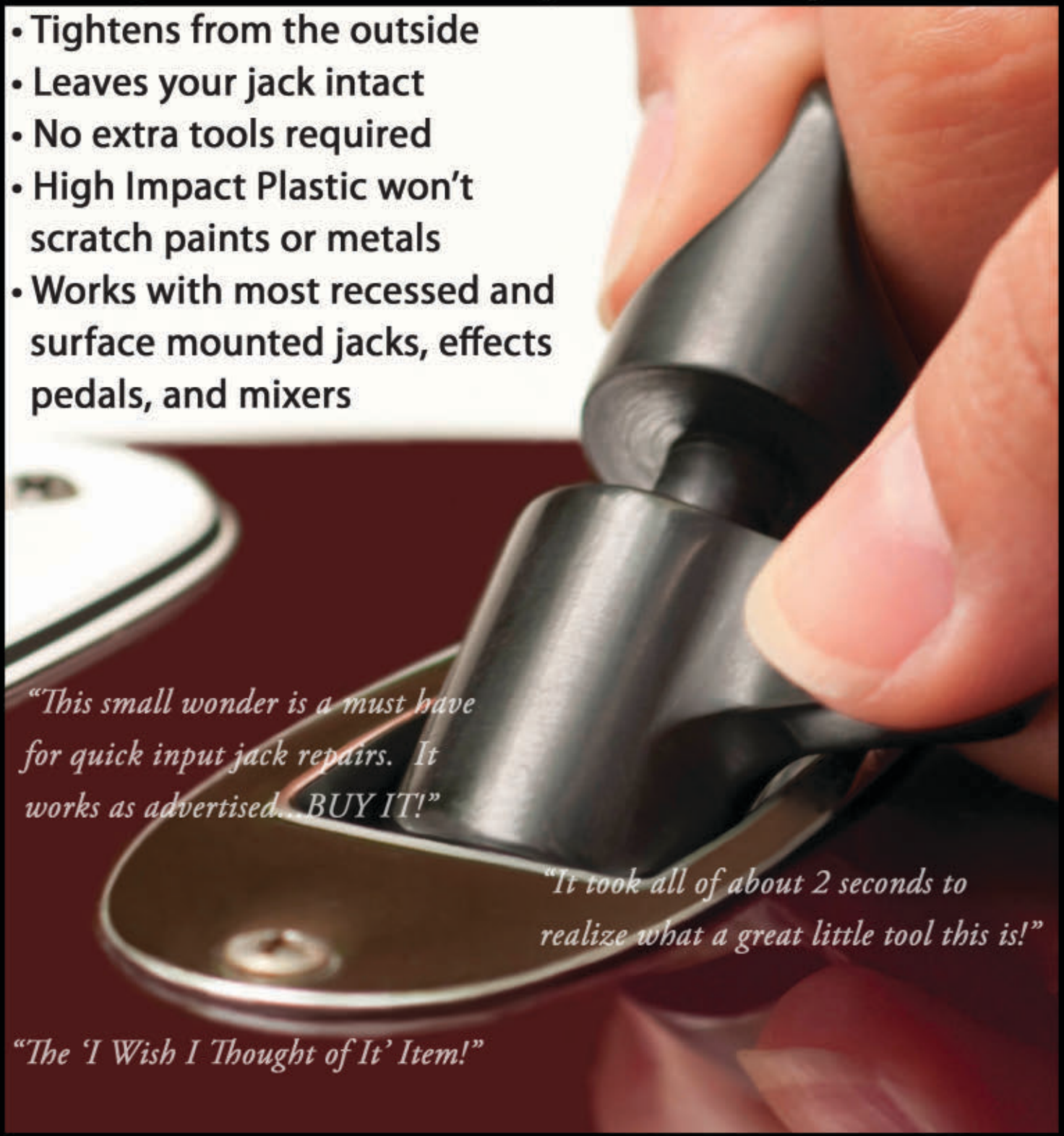
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Developing Vocabulary: Concepts and Motifs

BY DAVE WEINER

Guitar veteran Dave Weiner has spent the last 13 years touring the world with Steve Vai. He also teaches at Musician's Institute (where he was once a student) and is the creator of Riff of the Week, one of the premier online guitar education websites. For more information, visit daveweiner.com.

CHOPS: Intermediate
THEORY: Beginner
LESSON OVERVIEW:

- Understand how to create and develop musical phrases.
- Learn the difference between a concept and a motif.
- Create a large phrase vocabulary to use when the spotlight is on.

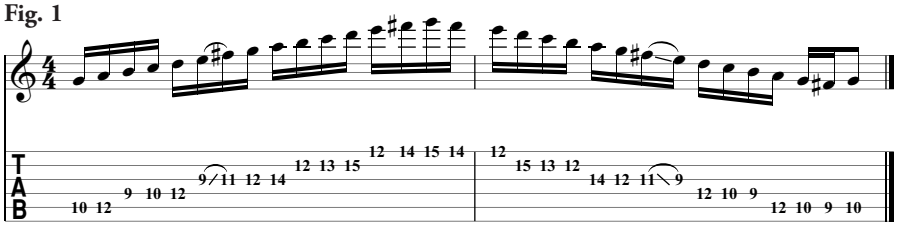
Click here to hear sound clips of these examples.

Every guitarist should know the importance of a large vocabulary. You want to emote—you want to "speak" through your guitar in any given situation. That takes a vast, memorized database of licks that you've accumulated and rehearsed a million times. Or does it?

I'm a big advocate for preparedness, so I say "Yes!" You should be writing at least one lick a day, playing it all over the neck in various keys and grooves, and—most importantly—working it into your improvisations. Did that lick "stick?" When you write a lick tomorrow will you remember this one? I hope so, but realistically, I doubt it.

You see, we simply don't remember most of the licks we write. My suggestion would be to record them and classify them by genre and revisit them as situations arise. Every lick you write is progress and some of them inherently will stick, but most won't. So how do we avoid the following all-too-common situation?

Fig. 1



You've got a gig. You've rehearsed plenty. All your friends are there. The hot chick in the front row is giving you "you're a rock god" eyes (assuming you're *not* playing an instrumental gig). Your amps are finally fired up to the level they're supposed to be. The downbeat drops and whoosh! Crickets. What little vocabulary you mastered is seemingly gone with the wind like the sound guy's burrito from last night. Ugh!

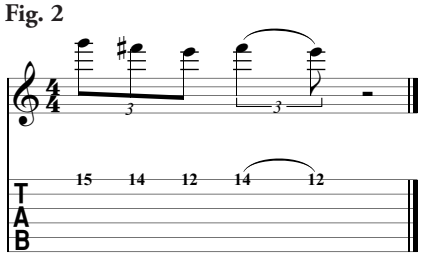
We've all been there. But how do we avoid this situation while working on our vocabulary? We develop methods to deliver creative, stylish, and musical ideas on the fly as if these ideas have been part of our vocabulary for years. How do we do this seeming miracle of musical mastery? Remain calm. It's not that hard. The answer is two fold: concepts and motifs.

Concepts

For our purposes, we'll define a "concept" as a combined execution of technique, rhythm, phrasing, and dynamics. These are the basic building blocks of anything cool and stylish in music. We can further define these concepts by adding in *direction of play* using patterns, shapes, or linear lines.

Simply put, here's how to build a concept: Think of a technique, throw some appropriate rhythm and phrasing (musical punctuation) on it, then add in "feel" through the use of dynamics. Easy enough right? It should be. But it's these basic musical elements that we seem to forget when we step into that performance situation. It's not a bad idea to write down "concept = technique, rhythm, phrasing, dynamics" and keep that in front of you just as a reminder to stay musical! Now that we understand what a concept is and how to keep it in mind, let's hand some to the audience on a silver platter through the use of motifs.

Fig. 2



Motifs

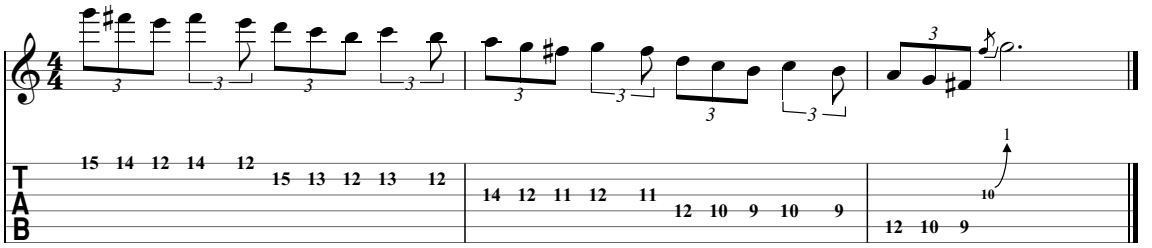
A motif is a repeated concept. Simple as that. How do you create a motif? Take your concept, repeat it at different parts of a scale via patterns, shapes, or directions (linear, diagonal, cross-fret), and voilà! You're playing a lovely, creative, musical line that wasn't pre-meditated but still sounds "vocab."

All we need to have in our minds (in real time) are those creative concepts. That's it. Then, through the wonderful and often overlooked power of repetition, we link those concepts to create as long a musical line as we want. Think of building a chain. The concepts are the links. You can add (repeat) links as much as you want to build as long a chain (motif) as desired. Our minds aren't filled with those specific, memorized licks, only the concepts. That's how we can create awesome lines on the fly and why our improv can get better in no time!

Okay, enough chit-chat: Let's put hand to fretboard and bring this all to life.

First, let's think of a concept. Let's pick some details, like key and quality. How about G major (**Fig. 1**). We'll pair a triplet-phrased rhythm with alternate picking and

Fig. 3



a pull-off. We'll play with three notes per string, but repeat them in our phrase, thus having five total attacks on that string. It'll sound something like **Fig. 2**.

Let's further define the concept by simply choosing a direction or path to play on. You can use the shape of a favorite pattern, a linear line up and down a string, a diagonal path, or any combination thereof. Let's play down a diagonal path that will start on the 15th fret on the 1st string and go as low as the 9th fret on the 5th string.

Now all we do is play the concept on the path, and we're playing our motif. This divine musical combo produces our on-the-fly, creative, musical line that seems like something out of a practiced vocabulary. Woo-hoo! For our purposes today, I'm going to keep things diatonic (all in the key of G major). Here's the final result in **Fig. 3**. You'll notice the bend to finish the line. Something different is always nice to break up the repetition of a motif.

Let's do one more example. Again, first create a concept. For this one, we'll use A minor pentatonic as our key and tonal quality. Check out **Fig. 4**, otherwise known as the "E" shape from the CAGED system. Let's pick tapping as our technique and we'll play it with a simple 16th-note rhythm. Now let's add direction. Our fretting hand is going to play the pattern across the neck from high E to low E. Our tapping hand is going to tap straight across the 12th fret in the same manner.

Now let's phrase it. We'll tap on E, pull-off to C, pull-off again to A, and then use a "hammer-on from nowhere" to tap on the G found on the 8th fret of the 2nd string (**Fig. 5**). That's our complete concept. Now, we're going to simply take that concept and move it down one adjacent string at a time, remembering to play in the pattern with our fretting hand and straight across the 12th fret with our tapping hand. Let's add the adjacent string and we get **Fig. 6**. If we keep adding on adjacent strings, we get our motif in full (**Fig. 7**), again creating a great, musical line developed on the fly by just thinking of one cool concept and then repeating it.

So there you have it. We know a vocabulary is essential, but being able to improvise and create lines in real time is paramount. The truth is that in a performance, it's about 30 percent vocab and 70 percent on-the-fly ideas. Yes, 70 percent is a big number but hopefully, with the methods I presented today, filling your 70 percent will become creative, musical and fun.

Fig. 4

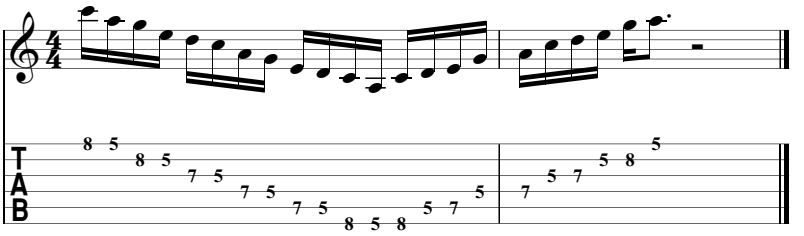
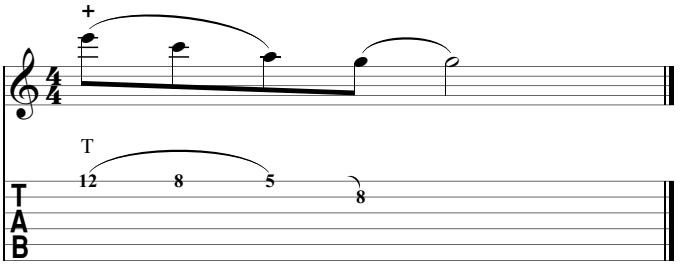


Fig. 5



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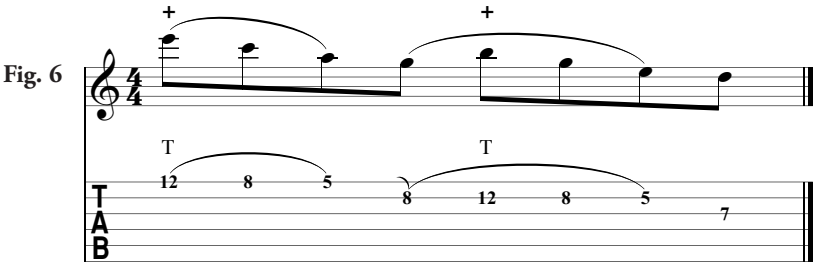

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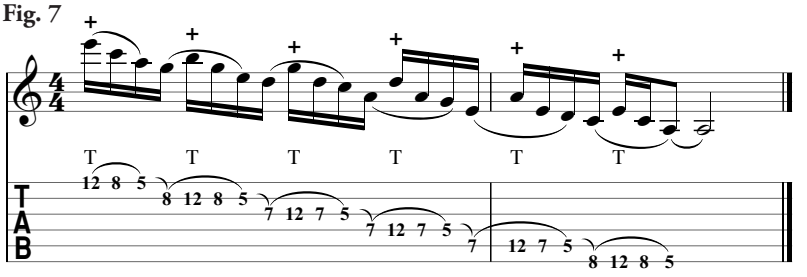

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Open for Business

BY MIKE CRAMER

Mike Cramer is an award-winning performer and educator. A stylistically versatile multi-instrumentalist, Cramer has shared the stage with or opened for B.B. King, Tommy Castro, Chris Duarte, Gordon Goodwin, John Hartford, and Steve Kaufman. Cramer co-founded All 12 Notes, LLC where he has a private lesson studio, teaching guitar, mandolin, and electric bass. His most recent CD release, Open Spaces, is a collection of original and traditional acoustic pieces. For more information, visit all12notes.com.

CHOPS: Intermediate
THEORY: Beginner
LESSON OVERVIEW:

- Understand three ways to incorporate open strings into your solos.
- Create a harp-like sound for scalar passages.
- Learn the bluegrass standard "Bill Cheatum."

Click here to hear sound clips of these examples.

No longer relegated to beginner-level melodies or open-position chords, open strings can add sonic spice to your solos and make them come alive. In this lesson we'll explore three ways of incorporating open strings into a solo. To facilitate our discussion, I'm calling these "devices."

- Device 1: Use an open string as a place to facilitate a position change.
- Device 2: Use an open string as a pedal point.
- Device 3: Use open strings to create a cascading effect.

Let's begin with Device 1. This is very helpful for creating seamless transitions from low-to-high or high-to-low, depending on the direction of the musical line. In **Fig. 1** we have a G major scale (G–A–B–C–D–E–F♯) spanning an octave and a 5th (G up to a high D) where the scale starts in 1st position and finishes in 7th position, with the open 1st string facilitating the shift into 7th position.

Wherever there's an open-string note that belongs to the key, then there is the potential to make a position change at this spot. In **Fig. 2**, we find the same G major scale with the shift occurring after playing the open B (2nd string). In **Fig. 3**, we once again play the G scale, this time a shift occurs after both the open B and E.

Playing scales by combining open strings and position shifts is a great way to break out of any position-playing ruts you may find yourself in, and it adds the sonic variety of open-string and fretted-note combinations.

Device 2 uses an open string as a *pedal point*. A pedal point is where a specific note—usually the root or the 5th of the key and typically the lowest note in a phrase—is continuously played while other harmonic or melodic material is played above it. In **Fig. 4**, we simulate the sound of a continuous pedal note by alternating between the pedal note and the melody above it, giving the impression of multiple parts. Focus on strict alternate picking and you've got a great picking-hand workout.

The devices mentioned so far are not mutually exclusive. While playing Fig. 4, you may have noticed that it combines both a pedal point *and* a position change. In that example, the position change is facilitated by an open string on beat 4 of measures one and four.

The sonic variety you can create by combining open strings and fretted notes is something unique to the guitar and other stringed instruments. The final device we'll discuss showcases this to a greater degree than either of the devices we've explored up to this point. Device 3 produces a harp-like sound from the guitar—sometimes referred to as cascades, floaties, or campanella—and open strings play a significant role in producing this sound.

To achieve this sound, we rearrange a passage that may typically be played on a few strings and play it across multiple strings,

Fig. 1

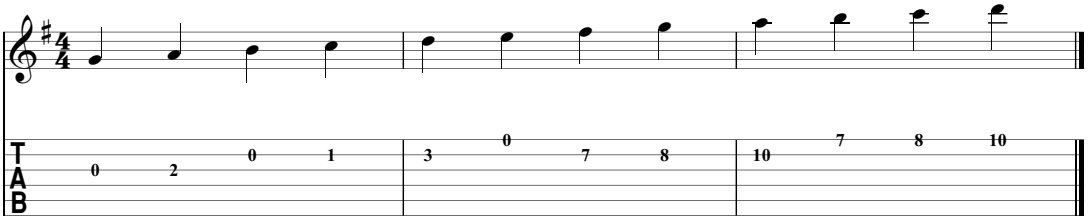
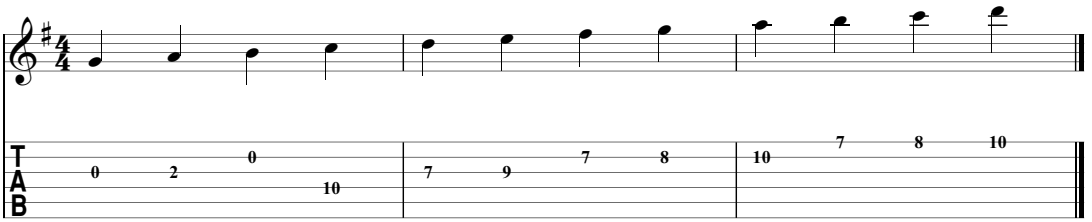


Fig. 2



Bill Cheatum

Traditional
Arr Mike Cramer
Capo 2

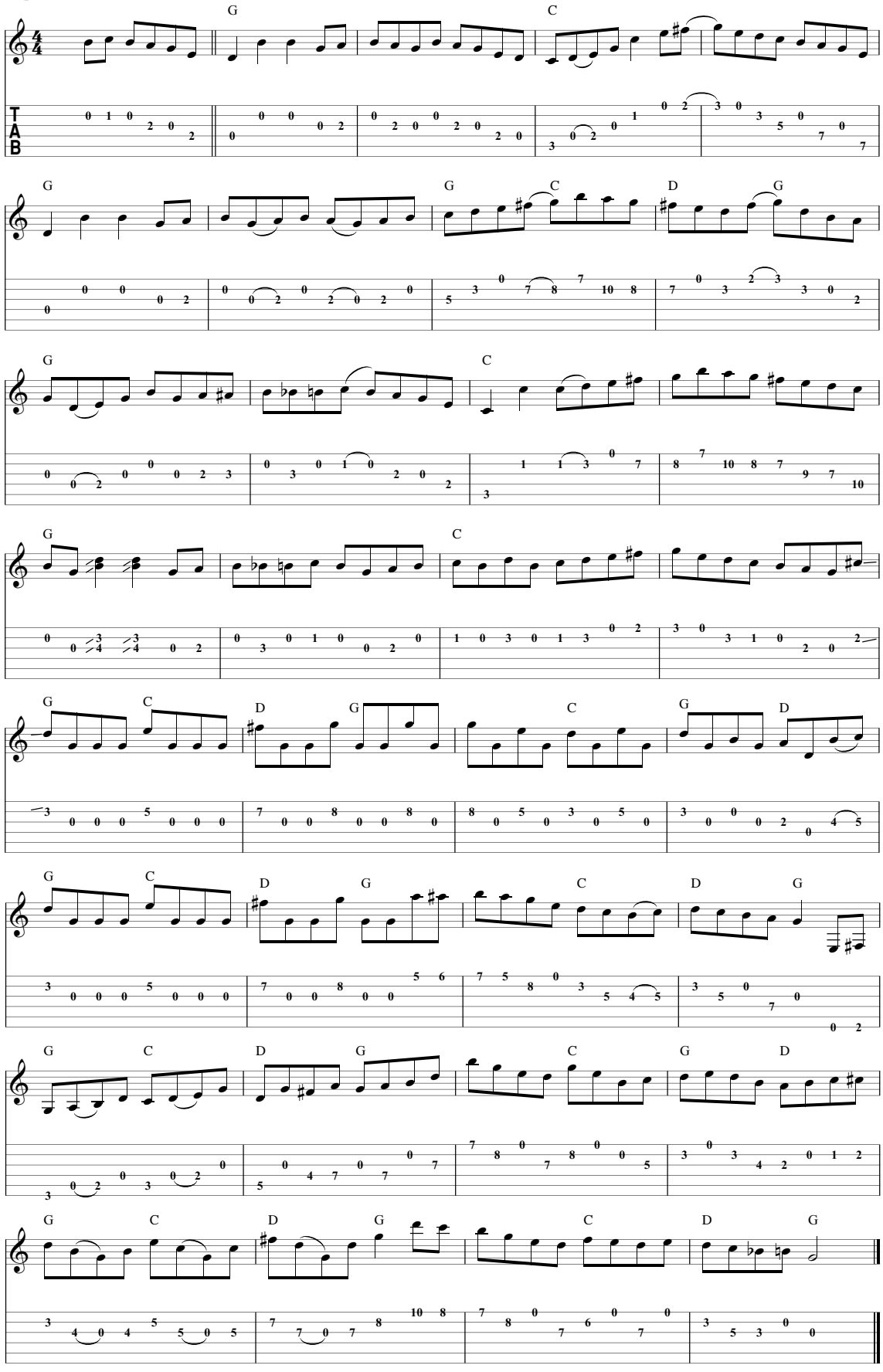



Fig. 3

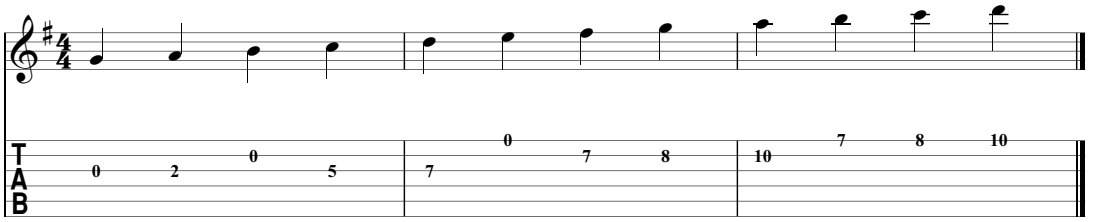
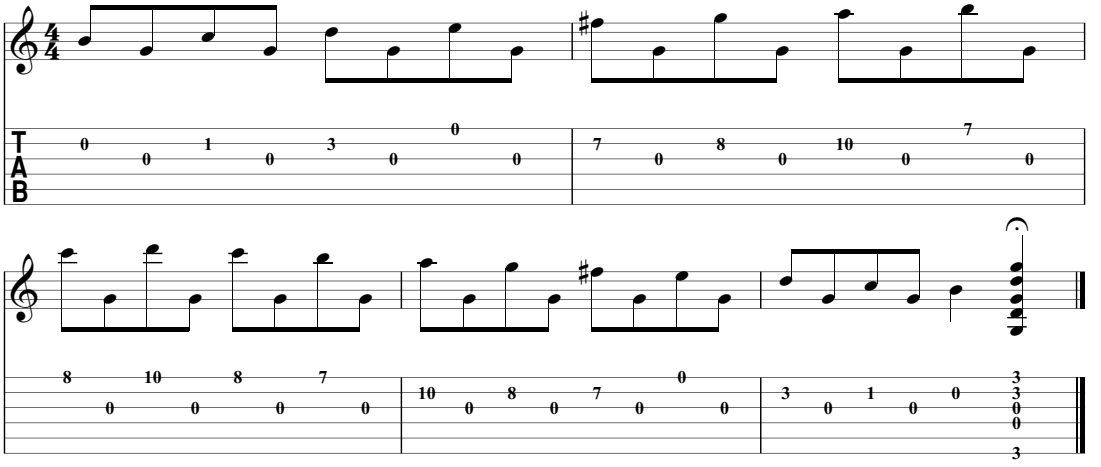
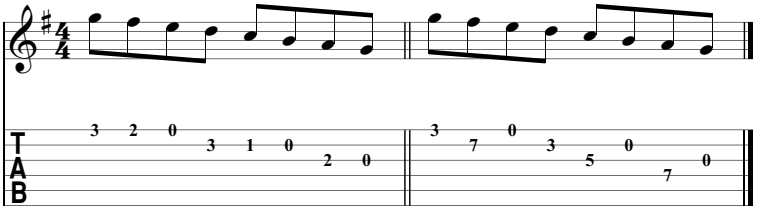


Fig. 4



allowing as many notes to ring as possible. Take a look at **Fig. 5**. Here you see a descending G major scale played in 1st position, followed by the same scale with a different fingering to allow multiple notes to sustain simultaneously. Because of the refingering, the open strings can continue ringing, and this contributes to the scale's harp-like quality.

Fig. 5



What better way to apply the information we've covered than to put it into a tune? I've written an arrangement of "Bill Cheatum"—a traditional fiddle tune—that incorporates all three of the devices we've discussed. "Bill Cheatum" is typically played in the key of A. However, I've notated it in the key of G, so grab your capo and place it at the 2nd fret, and you'll be in the key of A. Let's dig into the piece and try out these open-string devices.

In measure five (counting the pick-up measure as one), Device 3 occurs in a descending G major-scale run. The final note (E) of that measure is played on the 7th fret of the 5th string. To get back to 1st position for the next phrase, the open 4th string is used to facilitate the position change (Device 1). Strive to make measures four through six sound as smooth and connected as possible. Keeping the open strings ringing in measure five will help with this.

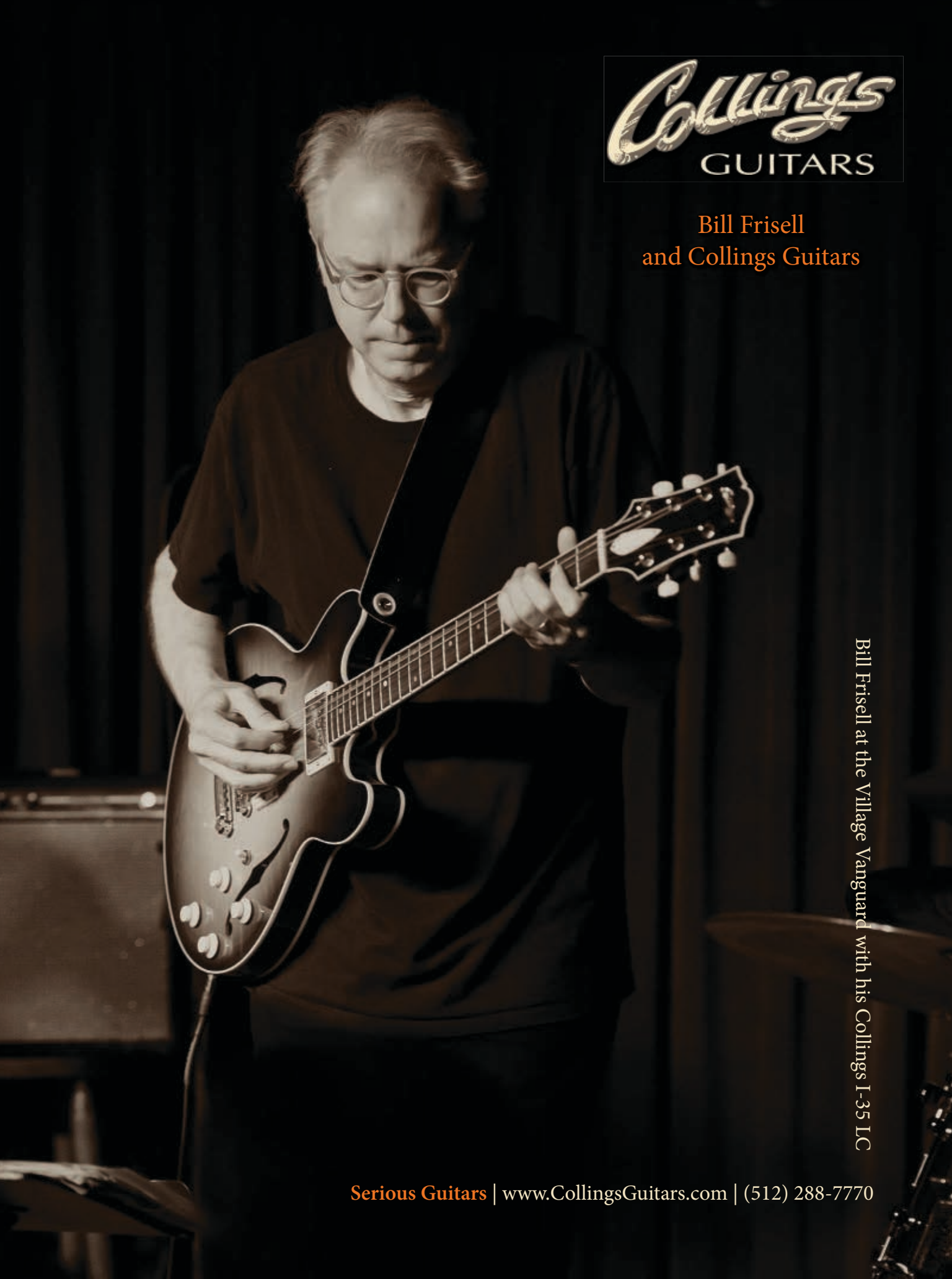
Measure eight begins with a cascading effect. The third note of the measure (E) provides an opportunity to shift from the 3rd position to the 7th position. To shift back to 1st position for measure nine, use the open E once again.

The phrase that begins on beat 3 of measure 12 and ends on the first note of measure 14 uses both the open 1st and 2nd strings for position changes. The phrase in measure 13 is played out of 7th position and resolves in 1st position thanks to the open 2nd string found on beat 1 of the next measure. By listening to the tone of the last note in measure 13 and comparing it to the tone of the first note of measure 14, we're able to hear the distinct characteristics of a note fretted higher up the neck as compared to an open string. Considering the tone of notes on various strings plays a part in deciding note placement.

The tune's B section begins at measure 18. Here, I've used a pedal point through measure 23. Measures 24 and 25 use Devices 1 and 2 to wrap up the first statement of the B section. At measure 25, beat 3, the open G provides a point for a smooth transition into the low register to begin the second half of the B section. Beginning in measure 27, we see the longest usage of Device 3, which resolves in measure 29.

Measures 30 and 31 reuse the G pedal point, but this time we vary the texture by playing pull-offs to the open G. The final two measures use Device 3, which generates a cascading effect to close the solo.

The techniques in this lesson will help you to navigate the fretboard outside the boundaries of position playing, challenge your picking hand, and add sonic variety to your arrangements and solos. When arranging your next solo, try adding a few of these devices. Good luck!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Diminished Capacity

BY PETE WEISE

Pete Weise has a B.M. and M.M. in Jazz Studies from the University of North Texas, is an Associate Professor of Jazz Guitar at Collin College, on the faculty of the National Guitar Workshop, and teaches privately at the Guitar Sanctuary and the Fine Arts Academy at FBC Keller. He leads his own jazz-fusion quartet and is a freelance guitarist in and around Dallas, Texas. Visit peteweise.com for more information.

CHOPS: Intermediate
THEORY: Intermediate
LESSON OVERVIEW:

- Understand where in the blues form to use the half-whole diminished scale.
- Create tension-filled altered lines using diminished arpeggios.
- Impress your friends with your mastery of secondary dominants.

Click here to hear sound clips of these examples.

I've always been a fan of Robben Ford, Larry Carlton, and more recently, Matt Schofield. Influenced by the jazz language, they will use more complex ideas but don't sound brainy doing it. Also, what they're playing is just as important as where they're playing it. More commonly used by jazz players, the half-whole diminished scale and diminished 7th arpeggio are right at home in a blues setting, and we'll be discussing ways to use them over a 12-bar blues.

In **Fig. 1**, the first measure is the A Mixolydian mode (1–2–3–4–5–6–♭7), the scale typically used over dominant 7th chords. In the second measure, our diminished scale starts on A and is built with alternating half-step and whole-step intervals, creating scale tones 1–♭9–♯9–3–♯11–5–13–♭7. When using this scale over an A7 chord, you not only get the basic chord tones (1–3–5–♭7) and the 13th, you also have a few chord alterations (♭9, ♯9 and ♯11) that will create some musical tension. The rule of thumb is to play a half-whole diminished scale from the root of your dominant 7th chord. I've included both scales so you can hear the difference between the insideness of the Mixolydian mode and the altered sound of the diminished scale. The fingering I'm using for the diminished scale is not as common as some, but it's eerily similar to the A Mixolydian mode. Practicing both scales back to back will help you to see where the altered tones lie on the fretboard.

In addition to scale-based lines, diminished arpeggios will also create some tension and inject a little angularity to your solo. There are two diminished 7th arpeggios that you can get from the A half-whole diminished scale: Adim7 (A–C–D♯–F♯ or 1–♯9–♯11–13) and B♭dim7 (B♭–C♯–E–G or ♭9–3–5–♭7). The B♭ arpeggio fits the A7 chord better because it contains more chord tones than the first.

The first half of **Fig. 2** is the A7 arpeggio followed by the B♭ diminished 7th arpeggio. The rule of thumb here is to start the diminished arpeggio a half-step above the root of your dominant 7th. Again, both arpeggios are included so you can hear the difference in their sound.

Musical Disclaimer: It's not that you couldn't use the Adim7 arpeggio, just be aware that it will sound more "outside" than the B♭dim7. Altered scales and arpeggios are important for creating the musical tension you so desire. But remember, musically resolving your temporary tonal excursion is just as important, if not more. Plan it out! Aim for chord tones in the following measure or jump back into the tried-and-true minor pentatonic scale. Otherwise, prepare yourself for the "don't taze me bro" type of reaction you'll get from your bandmates.

We're going to apply the half-whole diminished scale to a standard 12-bar blues in the key of A, as shown in **Fig. 3**. Harmonically, it's pretty straightforward using only A7 (I), D7 (IV), and E7 (V). Because each chord is

Fig. 1

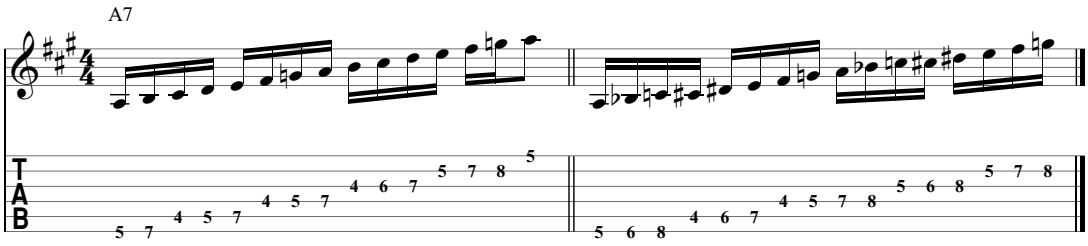
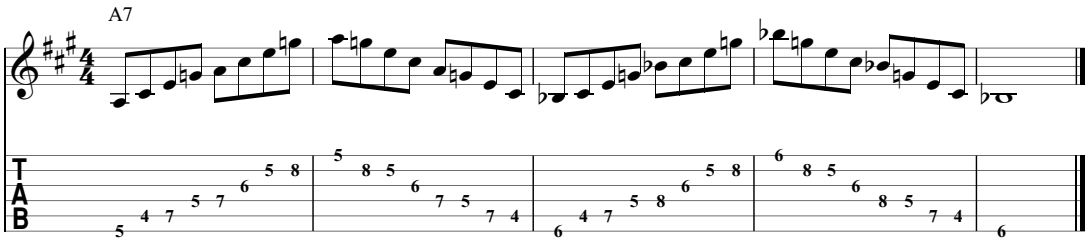



Fig. 2



a dominant 7th, you could use a half-whole diminished scale in every measure if you wanted, but that would be all tension and no release. So, where are you going to use the diminished scale? You want to use it at places where there is a V–I chord progression (measures four and five, measures 12 and one), or any time you go back to the I chord (measures six and seven, measures 10 and 11).

We tackle the first place in the form where the diminished scale can be used (measures three through five) in **Fig. 4**. You might be thinking "A7 to D7 isn't a V–I chord progression," and it isn't. In the key of A, that is. Pretend for a minute that you are in the key of D where V–I is now A7 to D. This theoretical slight of hand is referred to as a *secondary dominant* and temporarily makes A7 the "new" V chord. Your solo will have some forward motion by adding tension to the end of the first phrase. It will sound like you're modulating to a new key, but you're actually setting up the release of tension when you get to D7. This lick starts with the A minor pentatonic in measure three, uses a Pat Martino-style phrase from the A half-whole diminished scale in measure four, and resolves to F♯, the third of D7 on the downbeat of measure five.

We capitalize on the move back to the I chord in **Fig. 5**. With a nod to Wes Montgomery, this D half-whole (D–E♭–F–F♯–G♯–A–B–C) diminished run in measure six is actually one measure long, but is displaced by one count. By starting this lick on beat 2, you delay the resolution and create a little more tension—subtle, but noticeable. The actual resolution happens with the half-step bend to C♯ on beat 2 of measure seven. The A minor blues scale is used to begin and end the entire line, flanking your diminished sensibilities with some meat-and-potatoes guitar playing.

The last phrase of a blues is where all the action is. From bluesy pentatonic licks to fusion-infused diminished lines, there are many tools at your disposal. **Fig. 6** starts with an A Dorian (A–B–C–D–E–F♯–G) flavor by using a half-step bend to C natural and an F# in measure nine. You could use the E half-whole diminished scale (E–F–G–A♭–B♭–B–C♯–D) in this measure if you're looking to ratchet up the tension from the beginning! Measures 10 and 11 is another "return to the I chord" situation, using an E♭ diminished 7th arpeggio pattern over D7 that resolves to A minor pentatonic material, reminiscent of Robben Ford or Matt Schofield. The end of this phrase uses the E half-whole diminished scale, leaving out the 13 and ♯11, but emphasizing the ♭9 and ♯9, as well as chord tones of E7. Also, the line starts at the very end of measure 11—half a beat early—and resolves on beat 4 of measure 12. Things don't always have to line up with the bar lines. Starting and ending your phrases before (or after) they're supposed to is a very hip and effective way to create tension.

These are just a few ways to use the half-whole diminished scale and diminished arpeggios over a blues. Drag out your looper, try them at different spots, and let your ear decide. Incorporate other fingerings, experiment with scale and arpeggio combinations, and remember to work out resolutions to your lines. You're probably only a half-step away from resolution.

Fig. 3

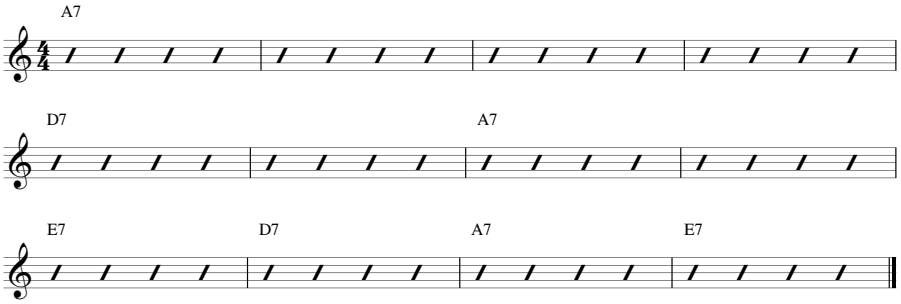


Fig. 4

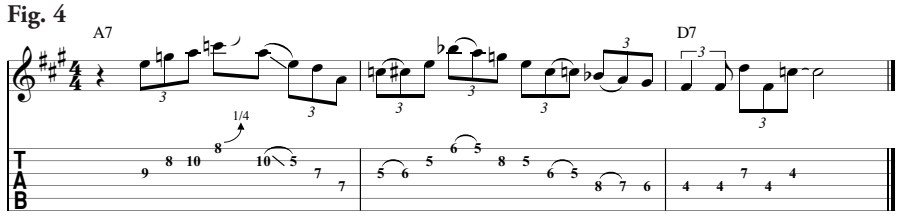


Fig. 5

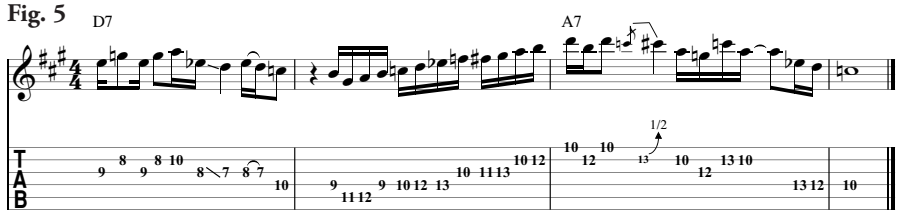
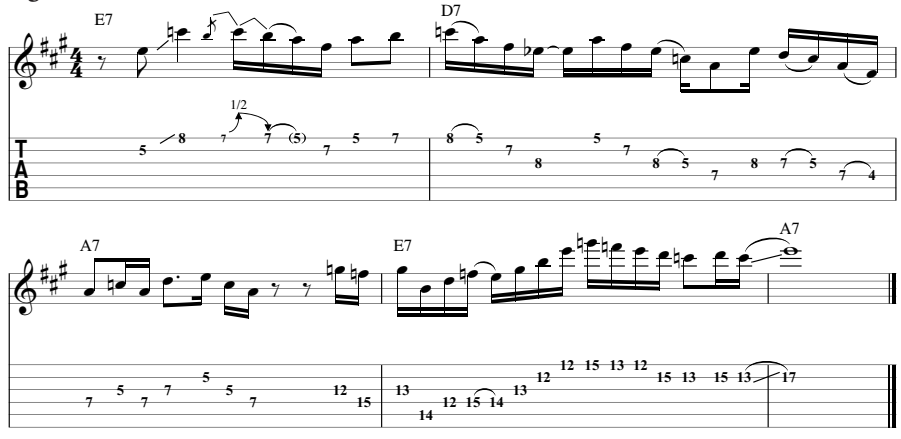


Fig. 6



One, Two, Three, Four

BY PAUL GILBERT

Paul Gilbert purposefully began playing guitar at age 9, formed the guitar-driven bands Racer X and Mr. Big, and then accidentally had a No. 1 hit with an acoustic song called "To Be with You." Paul began teaching at GIT at age 18, has released countless albums and guitar instructional DVDs, and will be remembered as "the guy who got the drill stuck in his hair." For more information, visit paulgilbert.com.

CHOPS: Intermediate
THEORY: Intermediate
LESSON OVERVIEW:

- Learn how to play guitar and count to four at the same time.
- Feel the rush of an Em9 arpeggio.
- Create long phrases by combining odd-numbered lines in different octaves.

Click here to hear sound clips of these examples.

If one had to choose the best "one, two, three, four" in all of recorded music, who would get the prize? Among the songs I'm familiar with, it would have to be a three-way tie between Paul McCartney's spirited count at the start of The Beatles' "I Saw Her Standing There," the passionate shout before the last verse of "Born to Run" by Bruce Springsteen, and George Harrison's grumble at the top of The Beatles' "Taxman." The Ramones get honorable mention for their legendary live four-counts, but when I actually listened to the studio recording of "Sheena is a Punk Rocker," it was either a "Go" or a "Four." (I'm guessing that the mastering engineer chopped off the "one, two, three.") There must certainly be other greats in this category, but those are the first that came to my mind.

My challenge for you this month is to play guitar and count to four at the same time.

Fig. 1 is the phrase I want to use. It can be played over an Em chord or an Em9 chord for more flavor.

There are 14 notes here. But I look at it as "5–4–5." That is: five notes descending, then four notes descending, then five notes descending. I visualize these three sets of notes separately, and it makes the larger phrase easier to hold in my brain.

I like to use a combination of picked notes and pull-offs. Please check out my suggested combination. The pull-offs allow me to "recalibrate" my picking pattern so that each of the three sets can begin with a downstroke. This helps me to mentally keep them organized, and I think that it's physically easier to play too.

After you've practiced this enough to make it comfortable, it's time to repeat it in two lower octaves, as you can see in **Fig. 2**. This is relatively easy to do. The notes are the same (just octaves lower), the fingering pattern is the same, and the picking/pull-off pattern is the same. All you have to do is shift positions and move to a lower set of strings.

Rhythmically, I removed the eighth-note rest that ended the bar in Fig. 1. So now, the high set of 14 notes leads right into the middle set of 14 notes … which leads right into the bottom set of 14 notes.

As they go whooshing by, these "14s" create an interesting rhythmic disorientation for the listener. But I want us (the players) to remain in rhythmic control. Somebody should know where "one" is, and it might as well be us.

The first step to accomplish this is to master the phrase itself. I should mention that after the three "14s," we go straight up an Em9 arpeggio to resolve the phrase. These are challenging licks, so I hope that the combinations of picking, pull-offs, and hammer-ons will make them easier to play. Once you've emerged from the woodshed with mastery of the entire phrase, it's time to start counting!

It will take some time and practice to develop the coordination to juggle these phrases accurately. But it is possible. And it's actually quite thrilling to get it right. It can feel surprisingly like looking down from the top floor of a skyscraper, or looking over the edge of a famous canyon.

I'm really scared of bungee jumping, but playing this phrase while counting "one, two, three, four" gives me a palpable rush. Why bungee jump, when you can play Em9 phrases and count to four?

Or try both and compare.

May all your canyons be grand.

Fig. 1

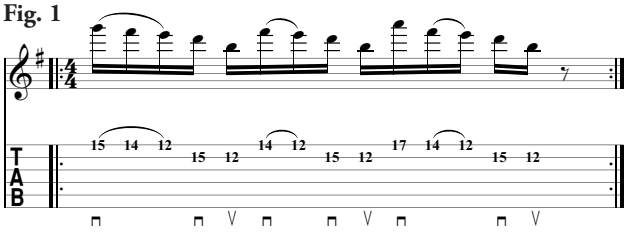
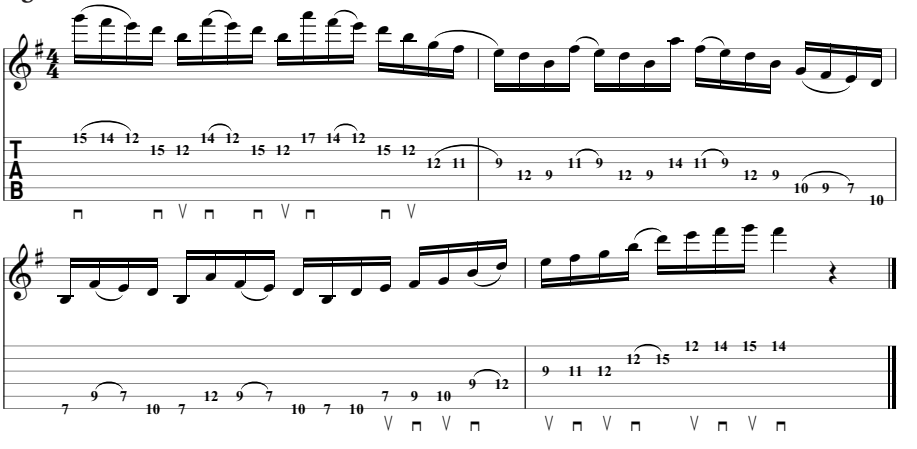
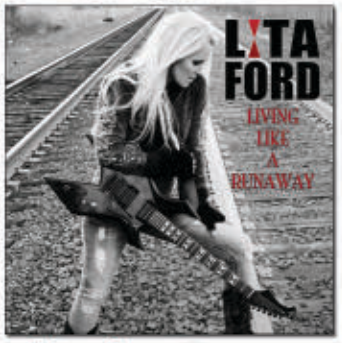


Fig. 2



Lita Ford

Photo: Neal Preston



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The Gospel ACCORDING TO STEVE

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The revered prophet of the 6- and 7-string parts the shroud to reveal the mysteries of his tones, compositions, and gear on *The Story of Light*.

BY JOE CHARUPAKORN

Steve Vai first gained notoriety nearly three decades ago when he joined forces with David Lee Roth after the famous frontman's split with Van Halen. Almost immediately, Vai usurped Eddie Van Halen's throne as the king of rock guitar, and throughout the subsequent decades Vai's continual innovations have distinctly changed the sound of rock guitar. What has always significantly differentiated Vai from other virtuosi in the annals of rock history is that, although he *can* burn with reckless abandon and fire, he's also an academic at heart—a passionate player whose mastery of music theory, composition, and orchestration could rival a Julliard professor. While still in high school, Vai wrote his first orchestral piece, an arrangement he called "Sweet Wind from Orange County." Soon after, he landed a gig with Frank Zappa by sending him a transcription of Zappa's impossibly difficult piece "The Black Page."

But even after decades of reigning as one of the world's most formidable guitar icons, Vai continues to hone his skills as a modern classical composer. In fact, he doesn't even need a guitar to satiate his musical urges. In some cases, a pencil and manuscript paper are all the man needs. Releases such as 2004's *Piano Reductions Vol. 1* feature strictly piano arrangements of Vai's compositions (performed by frequent collaborator Mike Keneally), and just this past November Vai premiered an orchestral composition sans guitar entitled "The Middle of Everywhere" that was performed by the Noord Nederlands Orkest (North Netherlands Orchestra). Of course, he has also indulged his inner guitar geek by not only writing for but also performing live with the Metropole Orchestra on releases like 2007's double-live album *Sound Theories Vol. I & II*.

For a lot of guitarists, an album like *Sound Theories* would be their magnum opus—after all, how do you top something as grand as writing for and performing with a symphony orchestra? But not for Vai. His latest release, *The Story of Light*, is the second installment of a rock-opera trilogy that began with 2005's *Real Illusions: Reflections*. As you'd expect, *Story of Light* is much more than just an instrumental shred fest—it features Vai's trademark genre-busting arrangements and an unlikely cast of guests, ranging from a gospel choir to vocalists Aimee Mann and (*The Voice* finalist) Beverly McClellan.

We caught up with Vai to talk about his latest epic, his take on the new Van Halen

album, and whether he'd still be content if he were just a mailman rather than a guitar hero.

What's the concept behind *Story of Light*?
It's sort of like a rock opera. I hate using that term, because I don't like opera at all, but basically it's the second installment of the *Real Illusions* trilogy. My plan was to do this story, and then at the end I would take all of these records and kind of amalgamate them into the story—and then, maybe, the songs would be put in proper order and there would be new stuff.

STEVE VAI'S GEAR

GUITARS
Ibanez signature electrics (JEM7V, JEM77, JEM70V, and UV777), Ibanez signature acoustics (EP5BP, EP10BP)

AMPS
Carvin Legacy 3 VL300 heads, Carvin Legacy 4x12 cabs with Celestion Vintage 30s

EFFECTS
Fractal Audio Axe-Fx II, Ibanez Jemini, Morley Bad Horsie wah, Morley Little Alligator volume pedal, DigiTech Whammy

STRINGS, PICKS, AND ACCESSORIES
Ernie Ball Cobalt .009–.042 sets, Ibanez heavy picks, Fractal Audio MFC-101 MIDI foot controller, DiMarzio cables and ClipLock straps

If somebody picked up *Story of Light* before *Real Illusions*, would the context be lost?
They're not in a sequential, chronological, linear order. It's not the kind of record where you have to follow the concept and know the story in order to enjoy the music. I wanted it, first and foremost, to be enjoyable music. Then if you read deeper into it, each song tells a little piece of the story.

***The Story of Light* spans a variety of styles. Does having such a broad range make it harder to unify things across the three albums?**
What I'm setting out to do is just do what I really like to hear in music, which is to create diversity—but with unique dimensions to it. "Creamsicle Sunset," for instance, is a clean guitar sound and a simple piece of music. Then you listen to something like "The Book of the Seven Seals," which is like "contrast" with a capital C. A lot of people are comfortable making records that have a musical theme that's in every single song. It's like, "Okay, this is our 7th string and we're tuning down and we've got a lot of distortion. We're going to do some soft parts now and then … but this is us." You could listen to song number one and song number 10, and it would sound like the same band. That's what a lot of people do, and that's great, but there's no rule that you *have* to do that. The only time people believe you have to do that is when so many other people do it that they think this is the normal way to do things.

"Creamsicle Sunset" starts off with the simple opening triad and inversions, and then morphs into some delicious dissonances that most rock guitarists probably couldn't gracefully maneuver.
Yeah, a song like that was like a little gift for me, because it was so simple. I picked up the guitar and I was just playing these triads—like an exercise you do when you're learning chords—but this particular time I played it, it transcended the exercise and it sounded like music. The whole song unfolded to me and all I needed was that first bar—the triad thing. When I came up with that idea, I had my iPhone and I turned it on and played those first three chords and left myself a voice note, "Create a track that has these inversions that keep building and building, and going higher and higher, and has the really juicy, beautiful chords in between." The whole thing was done before I finished playing the third triad. My goal was that every note in the song had to have its own zip code, and it had to sound like a little

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Photo by Lindsey Best

church bell that it owns. When you imagine these things, that's how you get them to come into reality.

Parts of "John the Revelator" are reminiscent of the scene in *Crossroads* that's right before the grand-finale guitar duel—and then it morphs into "The Book of the Seven Seals." Were the two songs conceived independently?

I came across this version of "John the Revelator" online. The vocal arrangement was done by two guys, Paul Caldwell and Shawn Ivory, and sung by a high school choir called The Counterpoint Singers. I contacted the woman that ran the choir and she sent me a cassette of the only stereo recording they had. I put it into Pro Tools, cut it up, and built the song around it, but it still wasn't good enough. The piano was dull, so I hired 10 of L.A.'s finest and they came in and sight-read this very intricate arrangement. Then I triple-tracked them, so it's like a hundred voices.

But as far as "John the Revelator" and "The Book of the Seven Seals," they were one song. It was a vision. To go from "John the Revelator," which is heavy guitars and tuned-down octave dividers with these gospel singers—that to me is always the way gospel should be presented, heavy, hardcore guitars playing very musical things—to the second part, with this extremely white-sounding, Republican, Midwestern vocal arrangement. That's such a contrast.

How did Beverly McClellan get involved on that track?

I needed somebody to sing "John the Revelator" and I thought I could do it, but it wasn't in my range. When I hosted an event for NARAS [National Academy of the Recording Arts and Sciences] with Sharon Osbourne, I went into the audience to check out what it sounded like and this woman, Beverly McClellan, took the stage and just tore it up. The moment I heard her sing, I was just stunned dead in my tracks. I thought, "She's gotta sing 'John the Revelator' for me." I was also thinking, "I don't know. She doesn't know me and she probably thinks I'm this crazy shredder guitar player," which a lot of these people who don't know anything about me just think. When I got backstage, she was there waiting in my dressing room with her CD and she said, "I'm a big fan. I know your music and I'd love to give you this CD." I said, "Look, we've got to do something."

"No More Amsterdam" features Aimee Mann, who also cowrote the song. I understand she was at Berklee College of Music when you were there.

Yeah, I was going to Berklee and Aimee lived in the same building as me, four doors down. We knew each other from saying "Hi." My girlfriend at the time, who's now my wife, Pia, was very good friends with her—they were actually in a little band called the Young Snakes. I had this weird preconceived idea—because I was very insecure at that time—that she thought I was a crazy, longhaired shredder and that I was doing all this progressive stuff. When you're critical and you're insecure, you think that anybody who's not doing the thing you're doing doesn't have any appreciation for

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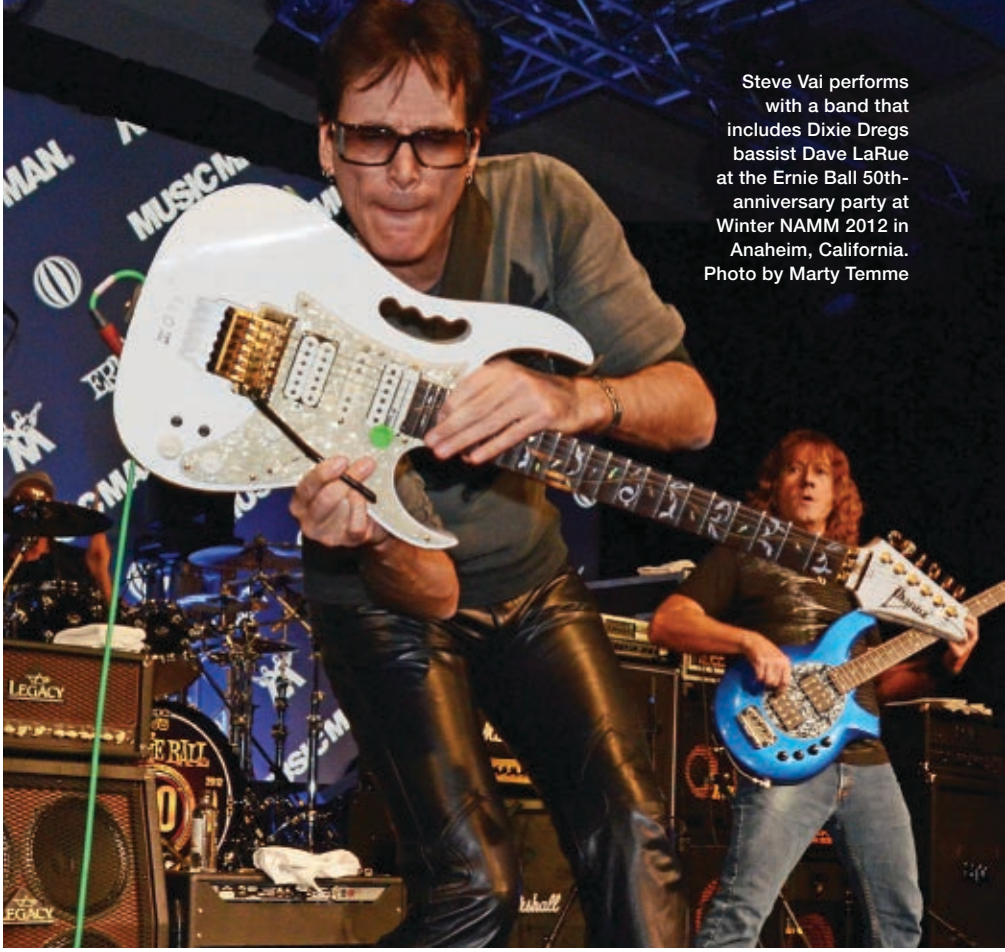
what you're doing, and the people who are doing it always think they're doing something better than you.

Many musicians feel that way.
Most people feel that way. Aimee wasn't like that at all, but I didn't know that. So when I was doing "No More Amsterdam," I started to write the lyrics and I just had a really hard time. Pia said, "Well, why don't you call Aimee?" I thought, "Aimee doesn't want to have anything to do with me." But I couldn't have been more wrong. She's way above all that stuff. It was my own insecurities that kept me from going to her.

You seem to always have a real clear picture of what you want. Was it hard for you to make compromises with Aimee?
For the most part, I'm very controlling—controlling in the sense that something has to feel and sound a certain way to me. Reaching out to somebody that's able to deliver that is part of the controlling nature. Her contribution fit perfectly with my control-freak nature, because my control-freak nature said, "Give it to her to do whatever she wants with it, because it's going to be great." We talked about it and she just fit these lyrics in that were just so much better than anything I think I ever could have come up with. She also made some vital suggestions about the form of the song.

Let's talk gear. What's your main rig right now?



Steve Vai performs with a band that includes Dixie Dregs bassist Dave LaRue at the Ernie Ball 50th-anniversary party at Winter NAMM 2012 in Anaheim, California. Photo by Marty Temme

Well I have a new head, the Carvin Legacy 3 VL300.

Is its smaller size designed to compete with the lunch box-type amps that are everywhere nowadays?
It's designed to be a lot more convenient—smaller but still packing the 100-watt wallop. It's a very simple, 3-channel amplifier. You open up a Legacy, and you're going to see some very powerful, simple wiring. In the process of designing these amps, I've always been a real stickler for the signal path and the motherboard, and how many components are going into it. Because every time you add a channel or a loop or a master volume, it compromises the main signal.

Do you use your Axe-Fx II just for effects?
Yes, just for effects. It's the most transparent piece of gear I've ever heard. With most other pieces of outboard gear for the guitar that I've played, there's always a price to

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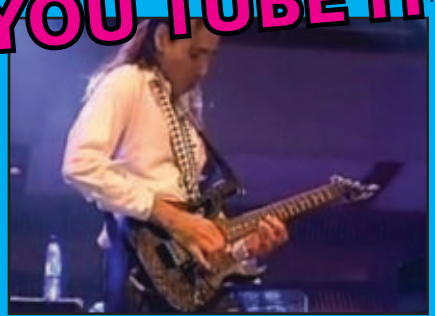
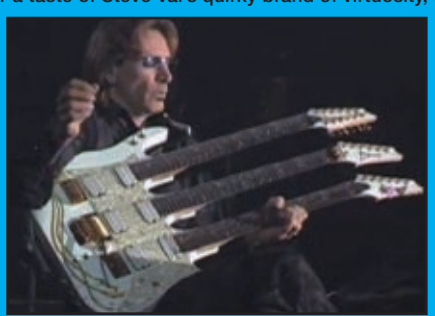
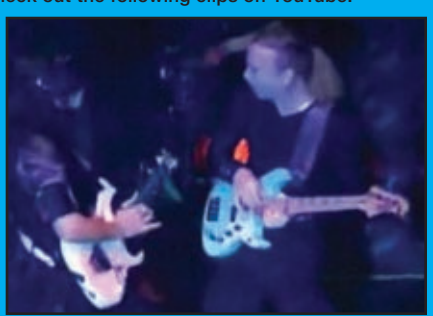
For a taste of Steve Vai's quirky brand of virtuosity, check out the following clips on YouTube:



Vai performs "The Attitude Song"—one of his seminal classics—with the Metropole Orchestra in 2008.
YouTube search term:
Steve Vai - Attitude Song Metropole Orchestra



Three necks are better than one, as Vai demonstrates during this 2003 G3 concert (with Yngwie Malmsteen and Joe Satriani) in Denver. From 4:34–4:40, Vai plays the most insane 5ths-based sequence *ever*.
YouTube search term:
Steve Vai - "I Know You're Here"



Vai and bass god Billy Sheehan perform "Shy Boy," the unison-filled shredfest that symbolized their respective instrumental powers during their stint with David Lee Roth in the mid '80s. Here, Sheehan takes vocal duties.
YouTube search term:
Steve Vai_and_Billy Sheehan__Shy Boy

pay—like latency, a roll-off at a particular frequency, or a noise that happens. Or there's just programming that's completely and utterly ridiculous and nonsensical and designed by nerds who want to fascinate themselves with their intellect and couldn't give a shit about the mind of a musician. There are people who do that because they can't play and they're fascinated with the electronics and make shit impossible to figure out. I'm really simple, you'd be surprised. My music might lead you to believe otherwise, but I like things to make sense. The Axe-Fx is the best-sounding pass-through processor I've ever heard.

Tell us about the new pickups you designed with DiMarzio—what tonal characteristics were you going for?
They're called Gravity Storms, and we've been working on them for about a year. If I were to explain, I'd say they sound more analog to me than digital. All pickups are analog, obviously, but you know how when you hear something that's analog? The Evolution pickups [stock units in Vai's Ibanez signature models] are very high output and have a very fat bottom end and a very bright top end. What I wanted with the Gravity Storms was maybe a little less output—because then I could crank other things. I don't know if they actually ended up with less output, though, because we went through so many pickups until I heard something that felt really right.

Is it true you recently changed string types?
I use Ernie Ball, but they just sent me these new Cobalt strings. At first I didn't like them. There was something very stretchy and slinky about them that felt uncomfortable. I was so surprised that somebody could make strings that felt so different and responded so differently than what anyone else was making. If you took any brand of strings and put them on my guitar, I'd be hard pressed to tell you whose they are—because a lot of these strings companies get them all from one source. But Ernie Ball really processes strings to make different sounds and different feels.

When I got these Cobalts, I was set off a bit because of the slinky-ness, like I said. I told Thomas [Nordegg, Vai's guitar tech] to take them off the guitar, but he left them on. I had them on five guitars here at the house, and I just started using them—I don't like taking time to change strings—and I started to get it. I was like, "Wow, they're so much more controllable." And the way the notes ring together when you clang them is very different, so I really grew into them and I like them a lot now.

You often pit guitar against timbres rock guitarists don't usually encounter—like the orchestras or the gospel choir in "Book of the Seven Seals." Do you accommodate your guitar sounds to fit those situations?
Not usually. It's according to how you play and how you process your sound. When I'm doing stuff with an orchestra, a smoothly distorted melody guitar can blend in very nicely with a violin or some other instruments. As an orchestrator, you have to know, "How does tuba compare to a xylophone?" They're very different

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instruments—they're organic instruments, because you've got to blow into one of them and you've got to hit the other one. There are no electronics involved. That's the difference, and that's the tone quality difference in the guitar that makes it stand separate from all the other orchestra instruments. It *is* difficult to blend—very difficult. You have to know how to orchestrate it to speak a particular way. But this is all subjective to the composer's ear. This is *my* vision for it.

Have you heard the new Van Halen album?
Yeah, I was really surprised. I thought the sound was very visceral—very distorted and very high energy. I was relieved, because I was afraid Edward was losing his ability to really play because I had heard rumors that he had stopped playing for a long time. But I was really surprised. It sounded like he had that fire. It wasn't the shell of greatness—I was hearing greatness again. What was cool was the way Edward and Alex can still lock. They really locked in on hyper-speed stuff, these grooves. I think I could take like three or four songs at a time—it's just so kinetic. I was really surprised at Dave Roth, too. I know how hard he works, but he kept working harder and now his vocal range is much greater than when I was working with him.

Really?
Yeah, I'm not placating. It's very obvious, and when I was hearing these notes I was like, "Whoa." I know Dave and I know that he worked really hard. People don't see that because they don't know him.

In your music, you've espoused experimentation and taking guitar to the outer limits—and, against the odds, you've been very successful. Since you're involved in the business side of your Favored Nations label, do you view submissions differently now than you would have as just an artist? If something stimulates you on an intellectual or musical level but you think it will have limited appeal, even within this niche market, will you release it?
Well, I have—but it's not that easy. For years with Favored Nations, I plummeted money into artists that lost a lot of money. Usually, *if* you get it in a store, if it doesn't sell, they send it back. You can ship a half a million records and get 499,000 back. So there are a lot of things that go into deciding whether to release a record: Is the artist capable of continuing a career? Are they gifted?

When I listen to submissions, I listen for people who I feel have a vision of their own. When I come across things like that, I think, "What can I do for these folks?" Because a lot of musicians just don't have an understanding of the business—but I do. I've thought, "I can't put this out, because it's just not going to sell at all, so what can I do?" So I started Digital Nations, and it's only digital releases. We have digital distribution in several hundred stores around the world. For, like, a hundred dollars you can sign up and get your music distributed around the world. In that regard, we're more of a service than a label—I have to make it make economic sense.

Long ago, you said if you were a mailman, you'd be just as content. Do you still feel that way?
I feel even more so, because you take who you are wherever you go. It doesn't matter if what you're doing is wildly successful or not. What matters is if you find satisfaction in it. I know that sounds cliché, but it's the truth. And I've seen it. You know I've been there and back and there and back again. The bottom line is you can be playing to 30,000 people and have a hit single and multiplatinum record, but if you don't like the music you're playing and if the guys in the band are assholes but you're tolerating them because of what's at stake, you're gonna be unhappy and that whole period of your life is going to have a dark shadow over it—and that's going to be your memory. What's that worth? It's not worth anything. If you can let go of that and find the thing that excites you the most and cultivate that, you're always going to be happy. And usually that's the thing you're going to be most successful at.

Vai gets a natural monkey grip during the 2010 Experience Hendrix tour at the Star Plaza in Merriville, Indiana. Photo by Barry Brecheisen

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SUMMER NAMM 2012

PG takes you inside the summer's biggest gear show to bring you the latest on tone toys from the big boys *and* boutique hopefuls.

Music-industry veterans often talk about the Summer NAMM show in Nashville as if it were a comatose old thing way past its relevance—something in desperate need of a dose of Kevorkian mercy. And, sure, many of the big names—Fender and Gibson spring to mind—don't find it worth their while. But that just makes room for the hungry, optimistic, starry-eyed entrepreneurs and inventors who are the lifeblood of boutique gear. Yes, some of these hopefuls are perhaps a bit more focused on engineering possibilities than they are on desirable tone or practicality, but then again the mainstream manufacturers aren't exactly hitting home runs with every release, either. Alas, we found plenty to like from both ends of the gear spectrum at this year's Summer NAMM—and here it is!

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Walden's new baritone acoustic has a grand auditorium body with a solid Sitka spruce top, laminated rosewood back and sides, bone nut and saddle, rosewood fretboard and bridge, and tuning machines with soft, vulcanized knobs. It's priced at $800 for the acoustic and $1,100 for the acoustic-electric, and both come with a hardshell case.
waldenguitars.com

MARTIN RETRO SERIES
Martin debuted the new Retro Series, which has four models—including the D-45E dreadnought shown here—made in collaboration with Larry Fishman and engineer Bil VornDick. The guitars feature Fishman Aura technology that enables you to get images of nine different vintage-mic samples of golden-era Martins.
martinguitar.com

DON'T FRET RESO-KNEE
Luthier Jack Dudley debuted his Reso-Knee resonator, which is made from cypress knee wood and features both an EMG pickup in the neck and a split-saddle Fishman Nashville Series Spider-Style Resophonic Pickup.
dontfretinstruments.com

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ELECTRIC GUITARS

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TV Jones re-introduced his famous Spectra Sonic C Melody baritone—which he originally designed for Brian Setzer as an instrument that would work well within the frequency confines of his 17-piece orchestra. It features a chambered alder body, a flamed-maple top, an ebony fretboard, and Jones' own Magna'Tron (neck) and Classic (bridge) pickups.
tvjones.com

MOSRITE BARITONE

Mosrite's amazing-looking, "salmon"-finished new baritone features a hot P-90-style neck pickup, a Vibramute tremolo, and volume and tone knobs.
mosrite-guitars.com

ALLISON EG-1

Hailing from Austin, Texas, Allison Guitars made its NAMM debut in Nashville. The 24 3/4"-scale EG-1 features an alder body, maple neck, rosewood fretboard, and Rio Grande P-90s.
allisonguitars.com

FORREST CUSTOM GUITARS DOUBLE BENDER

Forrest Lee Jr.'s just-finished double bender model features internal, custom-machined pull-string levers for the B and G strings. Its 7.6-pound body is made of swamp ash, and it features tappable, scatter-wound pickups made by Jeff Callahan.
forrestcustomguitars.com

TAUSCH GUITARS 665

Tausch Guitars out of Illertissen, Germany, made its North American debut at Summer NAMM. Distributed by Jamie Gale Music in Toronto, the 665 features a chambered singlecut body of pear wood and either H-S-H or S-S pickup configurations. It gets its name from its 665 mm scale—just over 26"—which provides taut, twangy low end.
tausch-guitars.com

ZERBERUS GUITARS TRITON

Built by luthier Frank Scheucher from Speyer, Germany, the Triton features a mahogany body, flamed-maple top, 5-piece maple-and-mahogany set neck, and custom quad-coil humbuckers.
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cecamps.com

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The class-A, 5-watt Little Monster AC head is driven by an EL84 power tube and two 12AX7s, and features gain and volume knobs, with thin/mellow and top boost/normal voicing switches.
mooeraudio.com

LITTLE WALTER CLASS A 15-WATT

The new, class-A Little Walter 15-watt head features all point-to-point wiring, a 6SJ7 new-old-stock preamp tube, a 6550 or 6L6 power tube, a 5Y3 rectifier, and volume and tone knobs.
littlewaltertubeamps.com

ZUERCHER AMPLIFICATION ZR45S

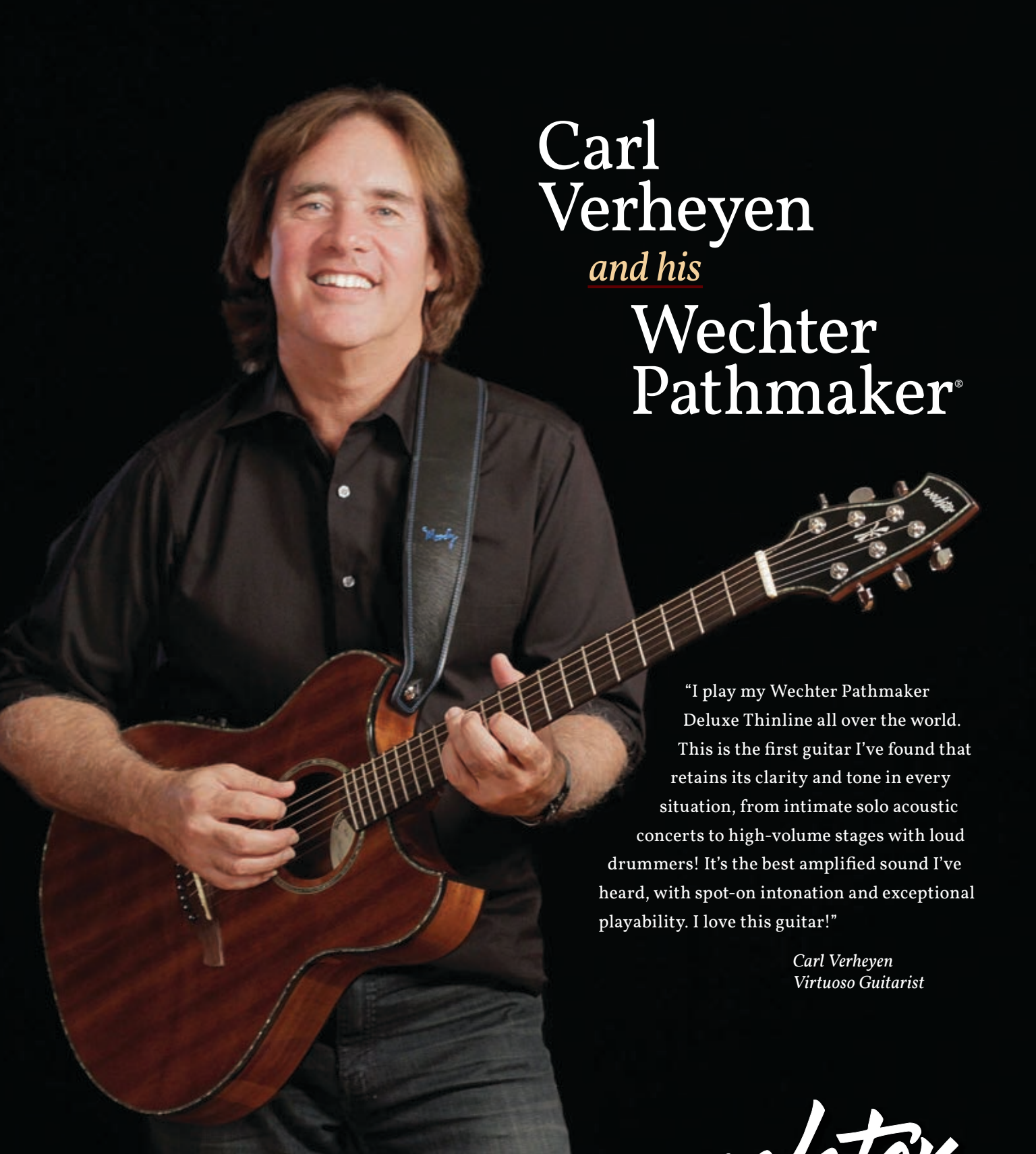
Zuercher Amplification debuted its 45-watt, 6L6-driven ZR45S, which features a 12" Weber speaker, a 3-band EQ, and master, volume, and presence controls.
redguitaramps.com

RENOVO AMPWORKS TEJAS

Renovo Ampworks' new Tejas line includes a head, a 1x12 combo, or a 1x12/1x10 combo. All pump out 22 class-A watts (switchable down to 11) and feature gain, high, low, and presence knobs, as well as a footswitchable boost.
renovoampworks.com

DEVILCAT JIMMY

The handwired, American-made Jimmy has two channels and features a funky, stackable dirt function that allows for clean, overdrive, clean/dirt, and overdrive/dirt settings.
devilcatamps.com



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wamplerpedals.com

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The new Wah the Fuzz? pedal features four effects—a 12AX7-driven overdrive, fuzz, octave fuzz, and Michael Schenker-style fixed wah modes—all of which can be used in any combination.
celestialeffects.com

EARTHQUAKER DEVICES CRIMSON DRIVE, HOOF REAPER, AND TALONS

The re-introduced Crimson Drive is a germanium overdrive that's the same as the original circuit only with an added tone control. ED also brought back the Hoof Reaper, which features parts of both the Hoof Fuzz and Tone Reaper pedals. Finally, Earthquaker debuted the Talons overdrive, which has an active tone stack and a presence control.
earthquakerdevices.com

BENADO SOLBURNER, ADVERB, AND AR JAZZY BLUES

Benado Effects brought three new boxes to Nashville: the Adverb reverb, the Soldano SLO-inspired SOLburner Distortion, and the AR Jazzy Blues multi-effector, which features a built-in A/B box, a boost, an overdrive, and an analog-style echo.
benadoeffects.com

EMPRESS EFFECTS TAPE DELAY

The Tape Delay features the same tape-delay functions as Empress' existing Superdelay—including a 3-way toggle to choose the "age" of tape (new, old, or vintage)—but in a smaller, simpler, more affordable package.
empresseffects.com

ELECTRO-HARMONIX TALKING PEDAL

EHX's second Next Step pedal, the Talking Pedal, is a vocal formant processor with built-in fuzz.
ehx.com

ACCESSORIES

ENHANCER AMP STAND

Sound Enhancer's new Enhancer E2 amp stand is designed to "reclaim" sound from the rear of the speaker and direct it forward for a more robust listening and playing experience.
soundenhancer.com

PEDALTRAIN VOLTO AND 1250

The USB-enabled Volto is a rechargeable power supply for daisychaining several pedals, while the 1250 has eight connections with a few unique appointments. Four outlets power 9V at 500 mA, one is switchable between 18, 15, 12, and 9V at 150 mA, and outlets 2–4 power 9V at 210 mA and feature mini hex-wrench ports for adjusting output impedance to mimic the response of batteries.
pedaltrain.com

BOICEBOX PEDALBOARD CASES

BoiceBox ventured to NAMM for the first time this summer, and its line of 3-ply, carbonized bamboo pedalboard cases turned heads. They come in a variety of colors and options, including tiered designs with AC and 1/4" connections and/or wheels and retractable luggage handles.
boicebox.com

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BASS GEAR

TC ELECTRONIC BH250

The 4-pound, TonePrint-enabled BH250 head pumps out 250 watts and will retail for $299. (The TonePrints app is free.)
tcelectronic.com

Z.VEX BASSTORTION

The new Basstortion was inspired by bassists who've loved playing the company's famous Box of Rock and Distortron pedals on 4-string. Its EQ response is optimized for low end and it features an effected and a dry output.
zvex.com

KNIGHT STRING 3/4-SIZE UPRIGHTS

A violin luthier and repairman by day, Anthony Galler of Knight String brought his impressive line of 3/4 size maple laminate upright basses to Summer NAMM. All models feature ebony fittings and custom bridges.
knightstring.com

WATERSTONE MEADEN SEMI-HOLLOWBODY

The Meaden has a 32" scale and is equipped with two humbuckers and sexy checkerboard binding. Pictured here is the violet burst version, which retails for $679 with a hardshell case.
waterstoneguitars.com

JOHN MARSHALL BIG BERTHA 6-STRING

Atlanta-based luthier John Marshall has been doing custom-order work for nearly 30 years, but this was his first NAMM appearance. His Big Bertha 6-string bass features a 5-piece body of makore, wenge, swamp ash, and purpleheart, and electronics revolve around EMG 45TW split-able humbuckers.
jmarshallcustomguitars.com

ACOUSTIC 360 PREAMP AND 361 POWERED CAB

The legendary Acoustic USA bass amp brand has been revived, and it brought the new 360 preamp head and 361 powered cab to NAMM. The 360 has inputs for active and passive pickups and a foot-switchable overdrive circuit, while the 361 is a variation on the original design, only with a 15" neodymium driver and a switchable horn for more highs and mids.
acousticamplification.com

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Higher Ground: A Look at Guitar in Higher Education

PG rounded up professors from some of the top guitar programs around to discuss how the role of the guitar in higher education has evolved and how best to prepare for taking the next step.

Deep Blues - Robben Ford, Pt. 1

Take a look at a few key elements of Robben Ford's technique in our latest Deep Blues lesson.

<<<

Cheapskate Collective - Craigslist and the 11-Point Cheap Gear Check

Before you head over to that mystery house across town to investigate a too-good-to-be-true deal, read these tips—and share your own!

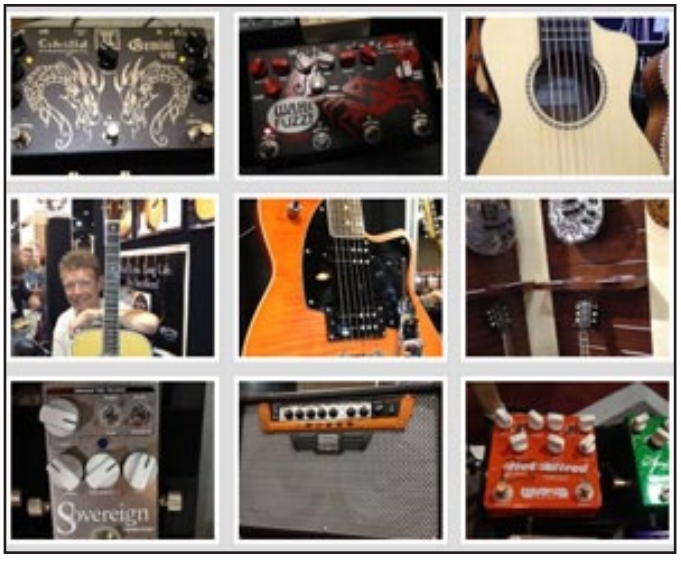
Gallery: Chet Atkins at the Country Music Hall of Fame and Museum

See guitars spanning the legend's entire career from a special CMHOF exhibit.

SUMMER NAMM

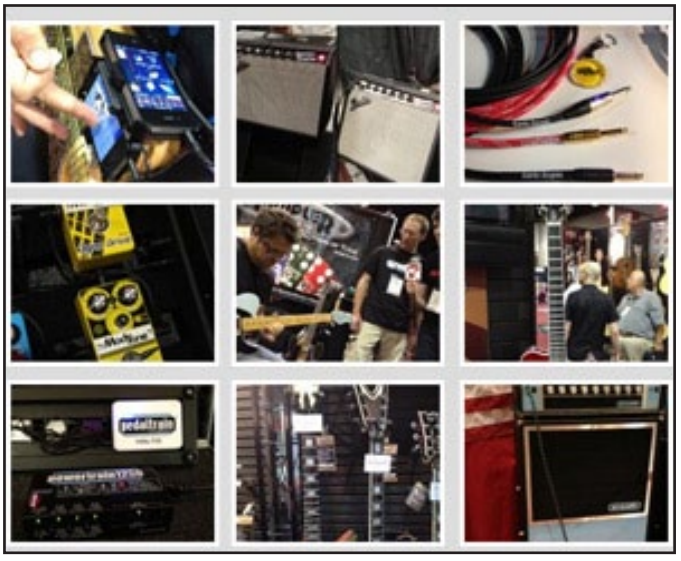
Your comprehensive guide to our Summer NAMM coverage.

GALLERIES



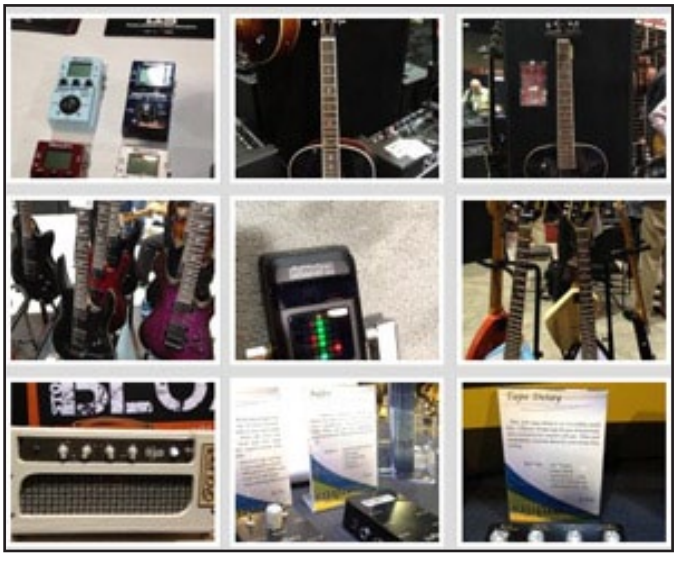
Floor Photos – Day 1

See new gear from Hughes & Kettner, Electro-Harmonix, Z.Vex, Roland, Reverend, Wampler, and more.



Floor Photos – Day 2

See new gear from TC Electronic, Mosrite, TV Jones, Larrivée, Empress Effects, Vox, Zoom, and more.



Floor Photos – Day 3

See new gear from Dean, Amptweaker, ModTone, EarthQuaker Devices, Pedaltrain, and more.

EDITOR FOR A DAY

Our lucky winners report back on their favorite gear, falling in love with Nashville, and what it's like to work as part of the *PG* video team.

VIDEO DEMOS

Check out all 60+ videos of new gear from companies big and small on display at this year's Summer NAMM show in Nashville.

Electric Guitars

211 Guitars Hexen and OSV USA Model

Artist Series Guitars Tombs Model

Boulder Creek Guitars H2-SMAB Solidbody

Don't Fret Instruments Lucky 13 and Reso-Knee

Eastman Guitars AR371CE Archtop, AR403CE, and T386

Greg Bennett Guitars Avion USA CE and GOM Acoustic

Larrivée Guitars Lancaster

The Loar LH-319 Archtop Demo, Recording King RAJ-122 Acoustic & AXL USA

Marshall Custom Guitars The Chief

Mosrite Guitars Baritone

Nik Huber Guitars Rietbergen Mahogany

Reverend Reeves Gabrels II

Sonic Wind Guitar

Tausch Guitars 665

Teuffel Antonio

TV Jones Spectra Sonic C Melody Baritone

Valoy Guitars

Vox Guitars Apache II

WhiteLight Design Ergotar

Zerberus Guitars Triton

Amps

Alairex Select-o-drive

Blackstar Amps Gus G Signature Blackfire 200 Amp

CEC Amplification Suckerpunch15 MkII

Devilcat Amplifiers Jimmy

Dynamo Amplification M50X

Four Force Amps EM-1

Hughes & Kettner TubeMeister 36

Little Walter Tube Amps Class A 15-Watt Head

Mooer Little Monster AC

Renovo Amp Works Tejas and StompBlox Pedalboards

Roland GA-212

ValveTrain Amps Savannah, Bunker Hill, & Saratoga

Zuercher Amplification Red Amp Series

VIDEO DEMOS CONT'D

Effects

Amptweaker TightFuzz

Benado Effects AR-1, SOLburner, and Adverb

Big Joe Stompbox Company

Celestial Effects Wah the Fuzz? and Gemini VTR

EarthQuaker Devices Crimson Drive Reissue, Talons, and Hoof Reaper

Electro-Harmonix Talking Pedal & Tone Tattoo

Empress Effects Tape Delay, Buffer, and Buffer+

Pigtronix Philosopher's Rock

VFE Pedals Dark Horse Distortion & White Horse Compressor

Wampler Pedals Signature Hot Wired and Tweed '57

Accessories

Korg Pitchblack Poly Tuner

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Voodoo Lab Pedal Power 4x4 Power Supply

Acoustic Gear

Bedell Guitars Limited-Edition Custom Shop Models

Breedlove Guitars Passport D/SM, Atlas Revival OM, Premier Grade Mandolins

Fishman Loudbox Performer

Martin Guitars Retro Series

Walden Guitars Madera CD4041E-CERT

Bass Gear

Acoustic Amps 360 Model

Cusack Effects Screamer Fuzz Bass and Screamer Bass

J. Backlund Design JBD-800

Knight String 3/4-Size Upright

TC Electronic BH250

Waterstone Guitars Meaden

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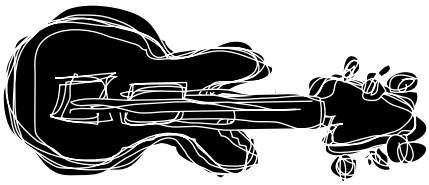

TINY TONE TWEAKS, DONE DIRTCHEAP

One of the industry's most esteemed builders shows us **5 EASY MODS** to hot-rod your electric.

(and practically free)

BY JOL DANTZIG

Some guitarists consider the notion of modifying an electric guitar from its stock configuration distasteful, while others consider it mandatory. As a custom builder with a decidedly vintage background, I fall somewhere in between. Generally, I'm most in favor of maximizing an instrument's usability without jeopardizing the ability to return it to original condition.

However, when I'm *building* a guitar, there's a myriad of small adjustments I can make to steer the instrument on a desired trajectory. These micro mods are interactive with each other and, depending upon the combination, offer a wide variety of sonic outcomes. But these little mods can also be applied to existing guitars—your guitars—in any number of permutations and to great affect. Let's take a look at five mods that are easy enough for most players to try.

Foaming Pickup Cavities

The first and easiest adjustment that most electric guitars can benefit from is stuffing soft foam into the cavity behind the pickups in order to stop microphonic squealing. The first time I used this was when I was repairing a Gibson Firebird for Johnny Winter—the foam stopped the pickup's back plate from vibrating like a microphone diaphragm. I have since learned that reducing the space (the cubic volume) behind a pickup modifies its sound at higher sound levels. Discovering this resonating-chamber effect has altered my approach to routing a body for pickups on new guitars, too.

It's easy to remove your pickup or pickguard and slide some foam rubber behind the unit. Start with soft foam first, and then increase the density to find the difference you like. Conveniently, the gray foam used in aftermarket pickup packaging makes great damping material: It's soft enough that you can double it up **(see Fig. 1 and 2)** to create more pressure on the pickup's back plate, too. This is a relatively no-frills mod that requires minimal materials and tools.

Fig. 1

Fig. 2

Pickup Magnet Tricks

As we all know, sometimes a pickup isn't a perfect match for a guitar. I always approach pickup selection like a vocalist would choose a microphone—finding the one that best brings out the guitar's character rather than attempting to change that innate character with a new pickup.

With this in mind, try swapping your existing pickups' magnets instead of replacing the whole thing. Magnet type and strength are big contributors to a pickup's tonality, so it stands to reason that tweaking them will affect your sound.

Swapping magnets is easiest to do with humbuckers. In fact, it can actually be done without completely disassembling the pickup—and sometimes without even unsoldering it.

The first step is to determine what's in your pickup already. The most common magnets for humbuckers are (roughly in order of strength): alnico 2, alnico 4, alnico 5, and then various types of ceramic magnets. In simple terms, the stronger the magnet, the greater the *potential* output. But you can't just look at magnetic strength alone, because stronger magnets also affect the string's ability to sustain.

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By moving up or down one level, in terms of magnetic strength, you can usually add or subtract a little edge from a pickup. If your guitar is too tangy, moving down one pickup level (e.g., from alnico 4 to alnico 2) may smooth it out. If you want to add bite, go with a slightly stronger magnet—like, alnico 5 to a ceramic magnet. The good part is that magnets are both easy to find and inexpensive in comparison to buying a whole new pickup.

Here's how to swap magnets in a humbucker:

Fig. 3

1. Before you begin, determine the magnet's polarity orientation (north/south). You can use a simple magnetic compass to do this (**Fig. 3**).
2. Desolder the main leads and remove the pickup from your guitar.

Fig. 4

3. Remove the protective outer tape (**Fig. 4**). This gives you a clear view of the internal parts. (**Note:** Be careful not to pull out the hookup wires underneath.) You should be able to see the magnet in the center, underneath the two coils.

Fig. 5

4. Loosen the four small coil-mount screws on the underside of the pickup (**Fig. 5**).

Fig. 6

5. Raise each of the adjustable pole pieces about four turns to release the coil from the back plate (**Fig. 6**).

Fig. 7

6. Gently pry the coils from the plate to provide a little gap (**Fig. 7**).

Fig. 8

7. Place a screwdriver in the gap at one end of the pickup and slowly tap the magnet out (**Fig. 8**). Once enough of the magnet is exposed outside the housing, you'll be able to pull the magnet out with your fingers. (**Note:** If your pickup is wax-potted, you may encounter some initial resistance as the wax breaks free.)

Fig. 9

8. Slide in your new magnet, being careful to match the same magnetic orientation you observed in step 1 (**Fig. 9**).
9. Return the adjustable pole pieces to their prior position, replace the coil-mount screws and tape, and re-install the pickup in your guitar.

BONUS MAGNET MOD
The Peter Green Flip

If you're an acolyte of Les Paul tone lore, you've probably heard about how original Fleetwood Mac guitarist Peter Green's Les Paul availed tones that most Les Pauls don't get when both pickups were activated.

I had the opportunity to disassemble Green's famous sunburst Les Paul in 1984 when it belonged to Gary Moore. I determined that the neck pickup magnet had been reversed, causing it to be out of phase with the bridge pickup—which is why it had that unique tone when both pickups were selected. Although Green's tone was stellar regardless of which pickup or guitar he used, this somewhat nasal tone is readily heard on many of the old Fleetwood Mac recordings, and has become the stuff of legend. To see how this mod sounds in your guitar, follow the steps in the "Pickup Magnet Tricks" section, but when you get the magnet out, flip it along its longest axis and put it in upside down. To make sure you've got the orientation correct, double-check with the compass again to make certain you've indeed reversed the polarity before you screw the coils back down (**Fig. 8**). Be forewarned, though—this tone is an acquired taste.

Modern vs. Vintage Wiring

Another relatively drastic but easy and cheap way to hot-rod your guitar's sound with its current components is to alter how and where its volume and tone pots are connected to each other. The difference can be subtle—and it's more a matter of preference than what's "correct"—but it *can* make the difference between a guitar that is just OK and one that really is a joy to play.

With this mod, what you're essentially doing is changing the way the tone and volume control interact, based upon how they "load" each other. I've mocked up a control setup here showing one volume and the corresponding tone control.

In the vintage setup, the pickup is wired to the pot lug alone, with the tone control capacitor being attached to the output side. This tends to allow the volume to be rolled off without losing too much high end. This is great for those who play clean rhythm by just lowering their guitar volume as opposed to switching amp channels or turning off a boost pedal. It's old-school, and it works. The downside is that the tone control sometimes has to be rotated a bit more before its effects are heard.

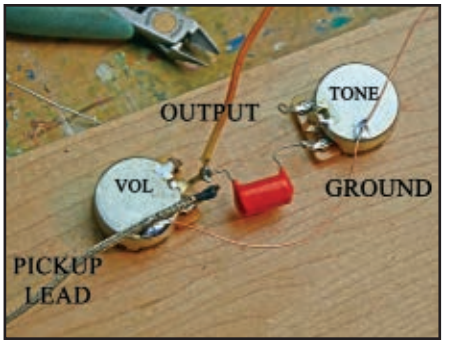

Fig. 10 Vintage wiring—which has pickups wired to the volume pot alone, and the tone control's capacitor being attached to the output—yields minimal high-end roll-off when you turn the volume down.

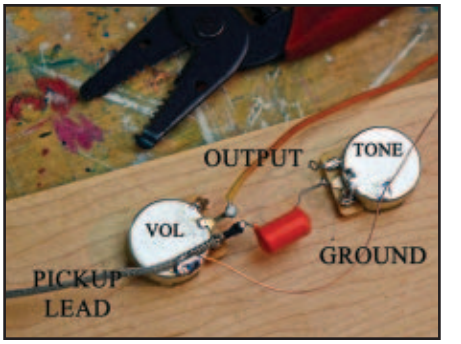

Fig. 11 Modern pickup circuits often have the tone control affecting the pickup's tone before it gets to the volume knob, yielding a decrease in treble response as volume is reduced.

In our so-called modern configuration, the tone cap is attached to the pickup *before* the volume pot. This presents the volume control with a totally different signal, resulting in a more colored sound as you reduce the volume. This can be useful if you like to turn up the guitar to cut through more. For me, the downside is the way it makes the tone control a bit of a hair-trigger affair. If you're the type who avoids the tone control, this won't be a factor for you.

If you have two sets of volume and tone controls (e.g., on a standard Les Paul), you may or may not decide to wire them differently, which can potentially open the door to even more tonal variations.

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4

Add Steely Twang to Your Strat

There are times when a single-coil just doesn't have enough *twang*. I've encountered Strat neck pickups that are just too wooly to provide me with that saucy, SRV/Hendrix-style rhythm juice. Or, sometimes an anemic bridge pickup just needs an extra dose of snap to push it into Tele-like territory. If so, this simple mod could be just what you're looking for.

When Leo and the boys at the big "F" ranch developed the Tele, they put a big slab of steel under the bridge-pickup coil. This reflected the magnetic field up and toward the strings. In the words of Seymour Duncan's Evan Skopp, this gives it more "crack"—which, if you're addicted to twang, is a good thing. The better news is that you can attach a plate (sometimes called an elevator plate, because of how it elevates the magnetic field toward the strings) to any single coil whose pole-piece magnets are exposed at the back.

To do so, purchase a small piece of .047"(18-gauge) sheet steel from your local hardware store. Then:

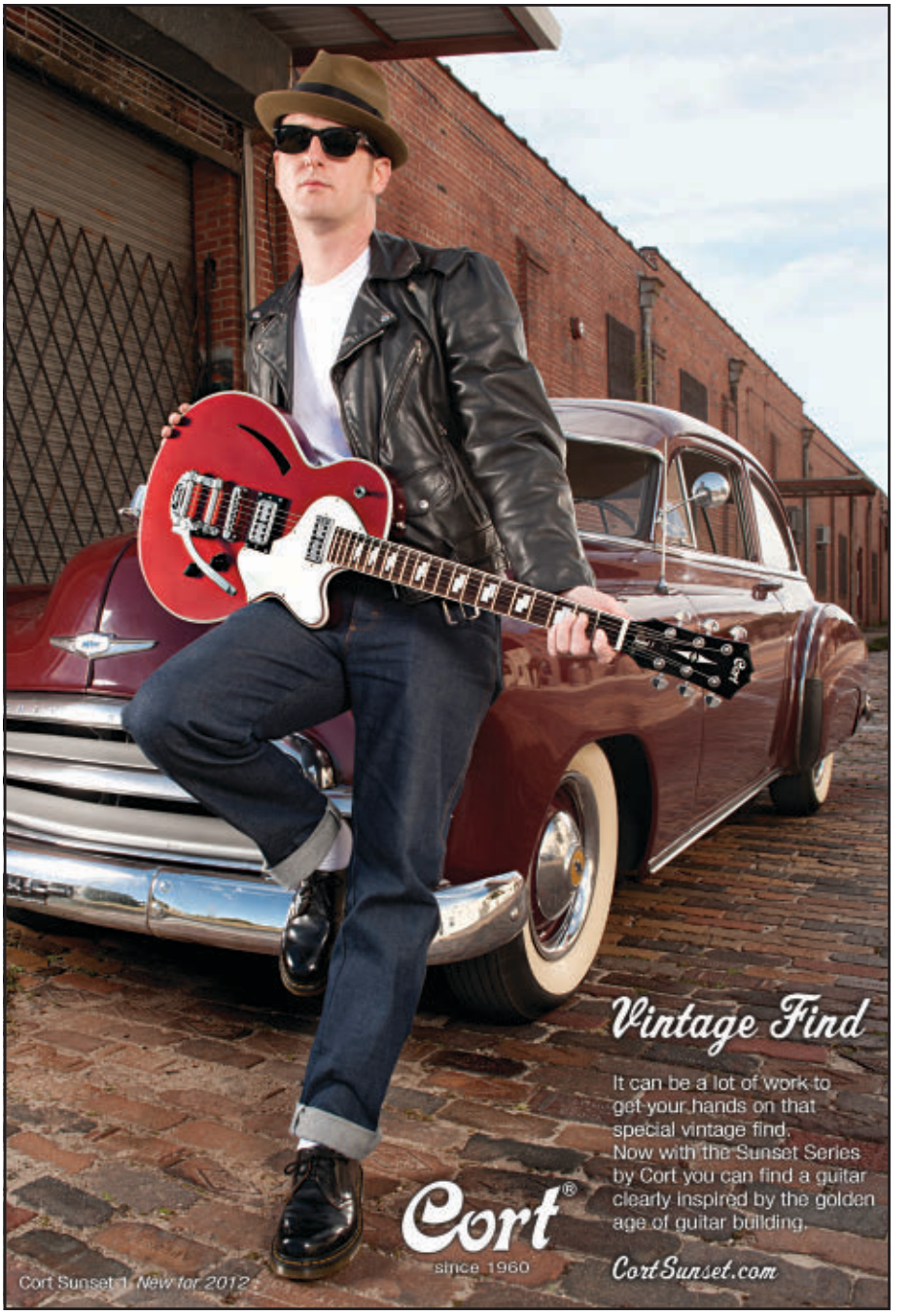
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Fig. 12

Fig. 13

1. Trim it to a manageable size and shape—about the same dimension as the pickup bobbin (**Fig. 12**). Then trim it so that it fits within the perimeter of the base plate without touching the lead wire contacts (**Fig. 13**).

Fig. 14

2. Using a small piece of thin, double-sided tape, fit the plate over the bottom of the pickup, and then secure it with dabs of adhesive (**Fig. 14**). I prefer hot glue, because it's easy to remove, but you can use epoxy or super glue, too.

This mod works great for Strat-type pickups or aftermarket Tele-style reproduction pickups that don't already have a plate. Some pickup companies make P-90s that don't have a metal base plate, and these can be twang-ified in this way, too. The best part is that, if you don't like the sound, you can just peel the plate off and be right back where you started.

5

Fine-Tuning Your Tuners

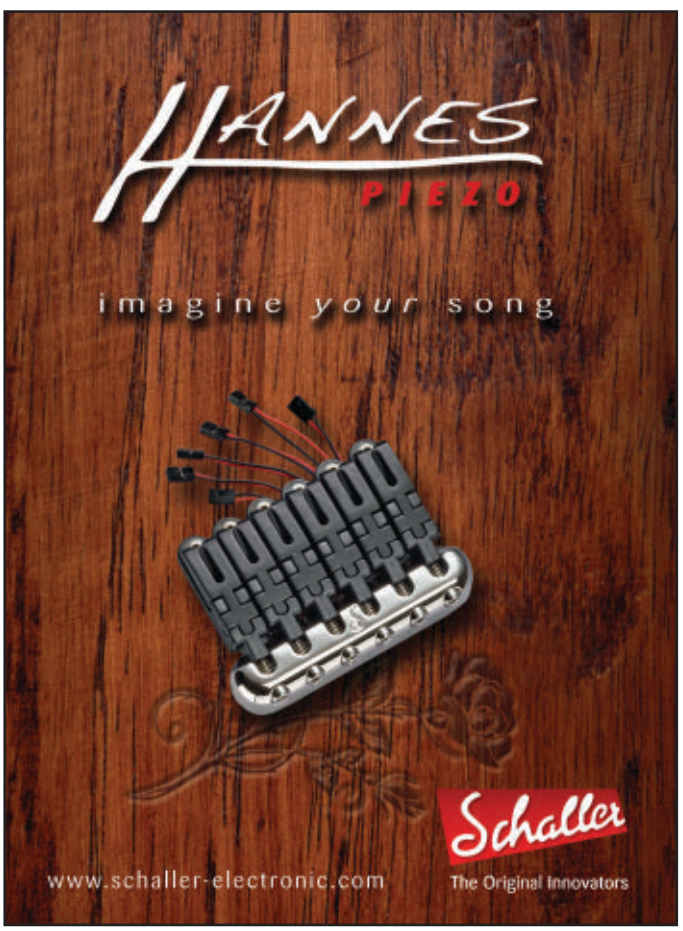
This mod is a little different—and definitely not as affordable as the ones we've been talking about up to this point. When players think about modifications that involve tuning machines, the subject revolves around tuning stability. That's all well and good, but I've rarely encountered a quality machine that slips—because the mechanical torque required to turn the tuner's capstan is pretty stout. Problems of pitch are usually more related to capstan wobble or a bad nut-slotting job.

However, there's another aspect of machine-head selection that I contemplate when building a custom guitar: weight. But this is more about sustain and tone than a question of neck-heaviness.

I've written in previous issues of *Premier Guitar* about how the size and shape of a guitar's headstock affect its sustain and tone. Clearly, the mass of the tuning machines is a factor in this, as well. Having overseen the building of tens of thousands of custom guitars over the course of my career has given me cause to consider machine-head weight as a fine-tuning tool in and of itself. This kind of mod is more complex than the others I've presented here because it is harder to predict, and obviously more costly to dabble in because it involves replacing the existing tuners. Nevertheless, I put it out there for those of you who are willing to go to the limit of sanity in the search for a responsive instrument.

This mod revolves around the concept that adding mass to the headstock lowers its resonant frequency, while reducing mass will raise that frequency.

This mod revolves around the concept that adding mass to the headstock lowers its resonant frequency, while reducing mass will raise that frequency. The theory at work here is that vibration is absorbed or reflected back into the strings and body based upon this frequency. Depending upon the harmonic makeup of your particular instrument, changing this can enhance or degrade sustain and accentuate or attenuate certain harmonics. All of this is dependent not only on your guitar's construction, but also on how large your headstock is to begin with. If all of this seems a bit hazy, that's because it is. I don't have a handy-dandy answer like "more mass equals more sustain" because it isn't always true. Suffice it to say that you can make a difference in a guitar's character by following this path. I usually go through this exercise with my builds because I have the luxury of time and the resources at hand. It's like fine tuning a race car's suspension settings to your liking.



Most of the better machine heads on the market these days use a standard .375" headstock hole, so swapping tuners isn't that hard to do. The problem comes with the mounting at the rear of the peghead. Luckily, if you use the type that screw down from the front side with a nut and washer, you can swap and test before you drill additional mounting-screw holes.

To illustrate the potential variances in weight that one can expect with different tuners, I rounded up three of the most common choices and threw them on my shop scale. You can weigh your current machines to compare. Be sure to weigh all the hardware—screws, nuts and washers—because it all comes into play. (All weights are in grams.)

The lightest of the bunch are minimalist Sperzel tuners, which look pretty sci-fi. They clocked in at 138 grams (**Fig. 15**). Well-made and beautifully finished, the Sperzels use a pin-mount on the back instead of wood screws—further reducing weight. This can be a game-changer if you have a substantial headstock.

Next up are the wonderful vintage Kluson reproductions by TonePros (**Fig. 16**). These are some of my favorites, and they weigh in at a moderate 186 grams with all hardware included. For many of my builds, the characteristics of these tuners are ideal. I enjoy the modern engineering these tuners hide within their vintage-styled exteriors, and the weight is almost perfect.

Unabashedly brute class, with typical German overbuilding, the Schallers shown here are the Incredible Hulk of the bunch (**Fig. 17**). At a hefty 272 grams, they have the might to get noticed when you fasten them to your axe. If you have a guitar with a tiny headstock, you'll hear and feel a difference with the Schallers. Whether or not you like the change is subjective, and it depends on the makeup of the rest of your guitar.

Sweat the Small Stuff

As we've shown here, a lot of relatively small—and inexpensive (many are practically free)—tweaks can hot-rod your tone and maneuver it to an array of differing ports of call. In some ways, it's like tossing a handful of dice instead of just two—because the way small tweaks interact can lead to exponential changes in sound. For that reason, my advice is to take it slow and only make a single change at a time to understand what it delivers. Besides, it's more fun (and less stressful) that way, anyway!

Fig. 15

Fig. 16

Fig. 17

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DIY

How to Convert a Flattop to Nashville Tuning

Turn your spare acoustic into a sparkling wonder that transforms songs from mundane to magical.

BY HUNTER ALLEN

PHOTOS BY ARIEL ELLIS

CLICK HERE to hear sound clips of the high-strung Taylor 512c.

It's a safe bet that every Nashville session player owns a high-strung guitar. Flattops configured this way are essentially half of a 12-string guitar, with strings 6–4 tuned up an octave. When you strum a guitar in this "Nashville tuning," you get shimmering chords with lots of deliciously close intervals that are impossible to finger in standard tuning. But the high-strung guitar isn't limited to Nashville studios—many guitarists bring a high-strung flattop onstage to add glistening tones to their live shows. While Nashville tuning simulates a 12-string, it's much easier to tune and play, and it takes up considerably less space in a mix.

Fortunately, it's easy—and cheap—to explore these jangly sounds. Switching a guitar from traditional to high-strung tuning requires only a basic knowledge of stringing and setup, and it only takes a few minutes, too. If you fall in love with the ringing timbres after trying it out on your axe, you can optimize the guitar for Nashville tuning by installing a new nut. Best of all, you can always return the guitar to its original state by simply reinstalling the old nut. Because it's reversible, this is the perfect mod for acoustic guitarists.

1. Before restringing for Nashville tuning, measure the action in standard tuning with normal strings. This dial caliper provides precise readings in thousandths of an inch. 2. A close-up of the dial caliper used to measure action.

STEP 1:

Take Preliminary Measurements

Before you start any guitar project, first analyze the instrument's general setup. Write these measurements down, so you can refer to them later if you decide to return your guitar to its original configuration.

1. **Tune the guitar to concert pitch.** To measure the string action—the height of the strings from the frets—I like to use my trusty old dial caliper, though alternatively you can use a precision metal ruler or string-action gauge. I typically measure from the top of the 12th fret to the top of the low E string (**Photos 1 and 2**), and then record the measurement. I do the same for the high E string.
2. Note the amount of relief in the neck, and then measure the string height at the nut. (For a detailed explanation of how to measure neck relief and string height at the nut, see "DIY: How to Intonate a Flattop Guitar," April 2012, or go to YouTube to view the companion video for that *PG* article. YouTube search term: DIY: How to Set Up and Intonate an Acoustic Guitar.)

STEP 2:

Restring the Guitar

Now you're ready to remove the old strings and install the new ones.

1. Be sure the new strings are the correct gauge. The easiest and most popular way to do this is to string your guitar with the four octave strings from a light-gauge 12-string set, as well as one each of the set's doubled 1st and 2nd strings. From 1st to 6th string, these high-strung gauges are typically .010, .014, .008, .012, .018, and .027. Simply install the strings as you would normally.
2. Tune to pitch as follows: High E (1st string) and B (2nd) are tuned to standard guitar pitch. Next, tune G, D, A and E (3rd–6th) one octave higher than normal. Strum the chords to a favorite song and dig the jangly, soprano-like sound.

STEP 3:

Check Playability

At this point, you'll want to determine if it's necessary to adjust the action. In the case of the Taylor 512c we used for this project, this wasn't necessary, as the setup was good and the guitar played comfortably with no string buzzing. Even though the gauges are very different between a standard light acoustic set and a high-strung set, the string *tensions* are close, so the neck isn't likely to shift very much, if at all.

1. Check action. If it needs to be altered, either adjust the truss rod for the proper relief (it should have a slight forward bow) or adjust the saddle height, or both.

Tip: *If you have any doubts about how to adjust a truss rod, get a guitar repair book or study the manual that came with your instrument. Many manufacturers offer free online instructions for adjusting the truss rods on their guitars.*

2. Examine how the strings sit in the nut slots. Even though the new strings have much smaller diameters and look out of place in the large nut slots, it's only the slots' depths that matters in relation to the frets, and that remains unchanged. To check string height at the 1st fret, hold each string at the 2nd fret and tap the string down onto the 1st fret to determine if there's a small gap between string and fret (**Photo 3**). If so, you'll be able to play the guitar as it is and bask in the sound of Nashville tuning.

Even if all the open strings clear the 1st fret and vibrate freely, the string *spacing* will be noticeably affected, and the new low strings may look and feel considerably spread out (**Photo 4**).

You have two choices here: One is to do nothing further—if the guitar plays and sounds great, then you are ready to roll (and rock). But on our particular guitar, the strings no longer lined up perfectly along the neck, so we opted for the second choice: Make a new nut.

3. After removing the standard strings and restringing with high-strung gauges, check that all open strings vibrate freely when seated in the original nut. 4. With Nashville tuning, strings 4–6 are replaced with thinner gauges and tuned one octave higher. Only one string is wound—the 6th. In most cases, these thinner strings can actually be played in the wider, original nut slots (shown here), in which case you'd stop at this point. But for optimum sound and playing comfort—string spacing is noticeably affected when using these thinner strings in the original nut—savvy guitarists equip their instrument with a new nut that's cut for the specialized high-strung gauges.

STEP 4: (Optional)

Remove the Original Nut

Before you remove the old nut, take a moment to look at the distance between the low E (6th) and high E (1st) strings, and also notice how each one lines up along the edge of the neck.

Now you are ready to remove the old nut.

1. If there is a build-up of lacquer around the nut ends, use a razorblade to score along the nut edges. This

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Tip: *It's a good idea to measure and record the distance between the two outside strings, as well as their individual distances from the fretboard edge at the 1st fret. These three measurements will allow you to calculate string spacing on the new nut.*

prevents the lacquer from chipping when you remove the nut.

2. Next, using a piece of scrap wood (approximately 6" x 2" x 1/2") and a small hammer (I use my fret hammer), gently tap on the front and back edges of the nut until it is loose enough to remove (**Photo 5**).

Tip: *The wood block needs to be wide enough to span the whole front or back of the nut, so there will be equal pressure along the nut surface when you tap the block.*

3. A jeweler's flathead screwdriver works well for prying out the loose nut (**Photo 6**).

5. To loosen the original nut, use a small hammer to gently tap a wood block against the front and back of the nut. **6.** Carefully pry out the original nut.

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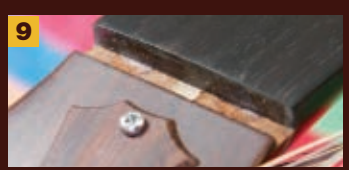
STEP 5:

Clean out the Nut Slot

The nut is usually lightly glued into the slot. A small amount of wood may lift up with the nut when you remove it (**Photo 7**). Don't panic, that's normal. Once you've removed the nut, you need to scrape out any residual glue from the slot.

1. Identify any spots of dried glue and scrape them out using a shop razorblade or scraping tool (**Photo 8**).
2. After scraping out the glue, brush or blow out all the debris from the nut slot, so it's clean and ready for the new nut (**Photo 9**).



7. Don't be surprised if a small amount of wood sticks to the original nut when you remove it from the guitar. **8.** The dried glue that held the original nut in place. Using a razorblade or scraping tool, carefully remove the old glue from the nut slot. **9.** The nut slot after being scraped and blown clean.

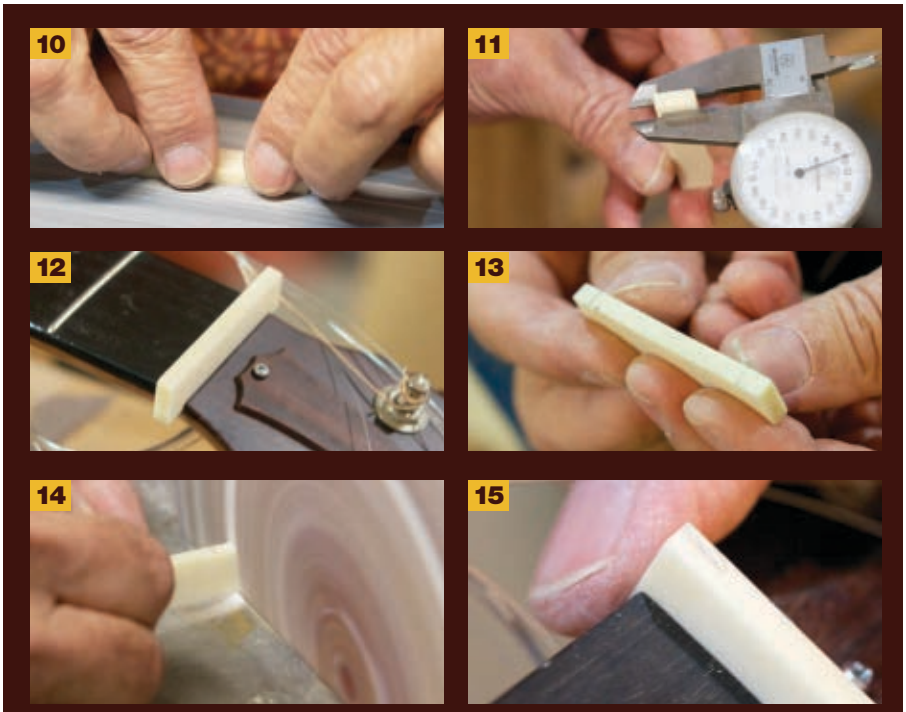
STEP 6:

Install a New Nut

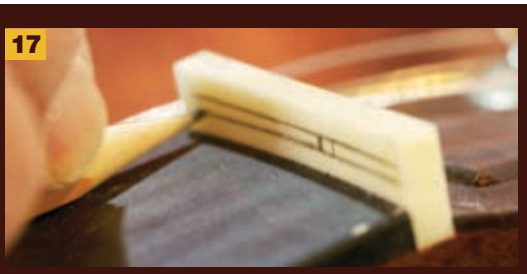
Once you have a clean slot, you are ready to fit and install the new nut. At our shop, we use a Plek machine—a computer-controlled fret-dressing and cutting device—to set the string spacing and cut the nut slots. That said, you can do everything by hand—the way luthiers have for centuries. (For a complete explanation of how to measure, cut, slot, and install a nut, see "DIY: How to Convert Your Axe to a Baritone," March 2012.)

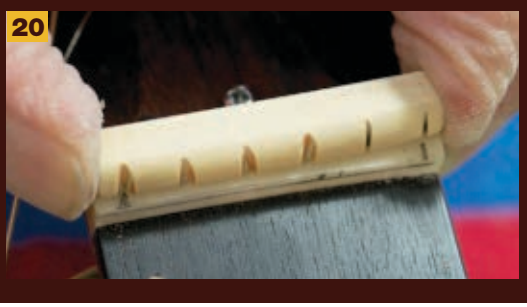
1. Carefully measure the nut slot and then shape the bone nut blank to fit into the slot, starting with the blank's thickness. Go slowly and measure frequently. (**Photos 10 and 11**).
2. Once the blank fits into the slot (**Photo 12**), it's time to trim off the excess length. With the nut in the slot, mark where it reaches each edge of the fretboard. These marks indicate how much bone you need to remove (**Photo 13**).
3. Trim the nut's length. You can sand it down to the pencil marks (**Photo 14**) or use a small hobby saw to cut the blank to size. Take your time and check your progress frequently (**Photo 15**).
4. When the blank's edges are flush with the fretboard (**Photo 16**), the next step is to trim the nut height. Lay a pencil on the frets and move its point up against the nut. While resting the pencil on the frets, slide it sideways, moving back and forth with the tip marking the nut. The resulting line marks the top of the nut—you'll remove material from the blank to this line.

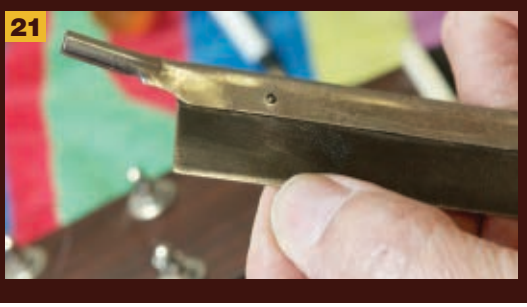
   Next, repeat the marking process, but this time tilt the pencil tip down and slide along the 1st fret (**Photo 17**). This second line roughly indicates where the bottom of the nut slots will ultimately be, once they're cut.
5. Sand or file the top of the nut blank down to the upper line (**Photo 18**). Once you've sanded down to the top line, insert the blank into the slot and admire your work: Now it's beginning to look like a nut (**Photo 19**).
6. If you liked how the original nut positioned the 1st and 6th strings



10. Sand the thickness of the bone nut blank so it fits snugly in the nut slot. **11.** Check the blank thickness during the initial sizing process. **12.** The nut blank is ready to be trimmed for length. **13.** Pencil marks indicate the fretboard edges. **14.** Sand off the blank's excess length. You can also do this with a small hobby saw. **15.** Check the blank's edges against the fretboard.







16. The blank's edges are now flush with the fretboard.

17. Mark the nut to trim its height by sliding a pencil sideways along the frets. The top line results from placing the pencil flat on the frets. Draw the lower line by tipping the pencil down and sliding it along the 1st fret. You'll remove material from the top of the blank down to the upper line. The lower line roughly indicates where the nut slots will bottom out.

18. Sand the blank down to the upper line.

19. Sized to its rough height, the nut begins to take shape.

20. Use the original nut to determine the location of the 1st and 6th strings.

21. A hobby saw that has been ground to a thin blade for cutting nut slots.

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relative to the fretboard edges, simply transfer this distance to the new nut. Place the original nut at a right angle to the blank and mark the center of the 1st and 6th string slots onto the blank (**Photo 20**). The spacing of the remaining four string slots is calculated from these two points.

7. Calculate the interior string spacing. At Glaser Instruments, we use our Plek machine to space and cut the string slots. The easiest way to set the string spacing manually is to use the String Spacing Rule, a handy metal ruler from stewmac.com that automatically determines the proportional treble-to-bass string spacing. It comes with simple instructions that guide you through the procedure, which is quick and easy.

Tip: *Again, for detailed instructions on how to cut a nut manually, see "DIY: How to Convert Your Axe to a Baritone," March 2012.*

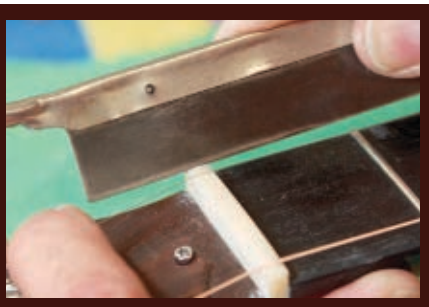
To take its measurements, the Plek machine requires that all six strings are on the guitar. To cut shallow guide slots that hold the strings in place during the initial measuring phase, we use a hobby saw that has been ground to a fine edge (**Photo 21**). Ultimately, we remove the strings from the nut and the Plek cuts new slots, after its software calculates the optimal string spacing, splay, and slot depth for a particular fretboard.

String spacing—whether done by hand or machine—is always based on subdividing the distance between the 1st and 6th strings. Using the marks transferred from the original nut, cut shallow guide slots for strings 6 and 1 (**Photo 22**).

From these two points, calculate the string spacing for strings 2–5 using the String Spacing Rule. Once the strings are spaced to your satisfaction (**Photo 23**), it's time to cut the slots.

8. Cut the nut slots. Our Plek holds the guitar inside a chamber that houses sophisticated measuring devices and a computer-guided cutting tool (**Photo 24**).

After securing the guitar in the Plek, we take several measurements to program



22. Cut the shallow guide slots for strings 6 and 1. The spacing of the four interior strings is calculated from these two points. **23.** With the exterior strings in their guide slots, position strings 2–5 using the String Spacing Rule.

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into the software that controls the cutting. This software plots a nut's many specifications, including string spacing, string splay, slot depth, nut top height, nut top radius, and string break angle.

Once the initial measurements are done and the software is programmed, we close up the Plek with the guitar inside. The Plek then takes its own detailed measurements of the fretboard and action, before shaping the nut and cutting the slots with a precision bit.

It only takes a few minutes for the Plek to cut the slots and rough-shape the nut height an radius.

After the Plek has done its magic, we put the nut back into its slot to confirm that everything looks right.

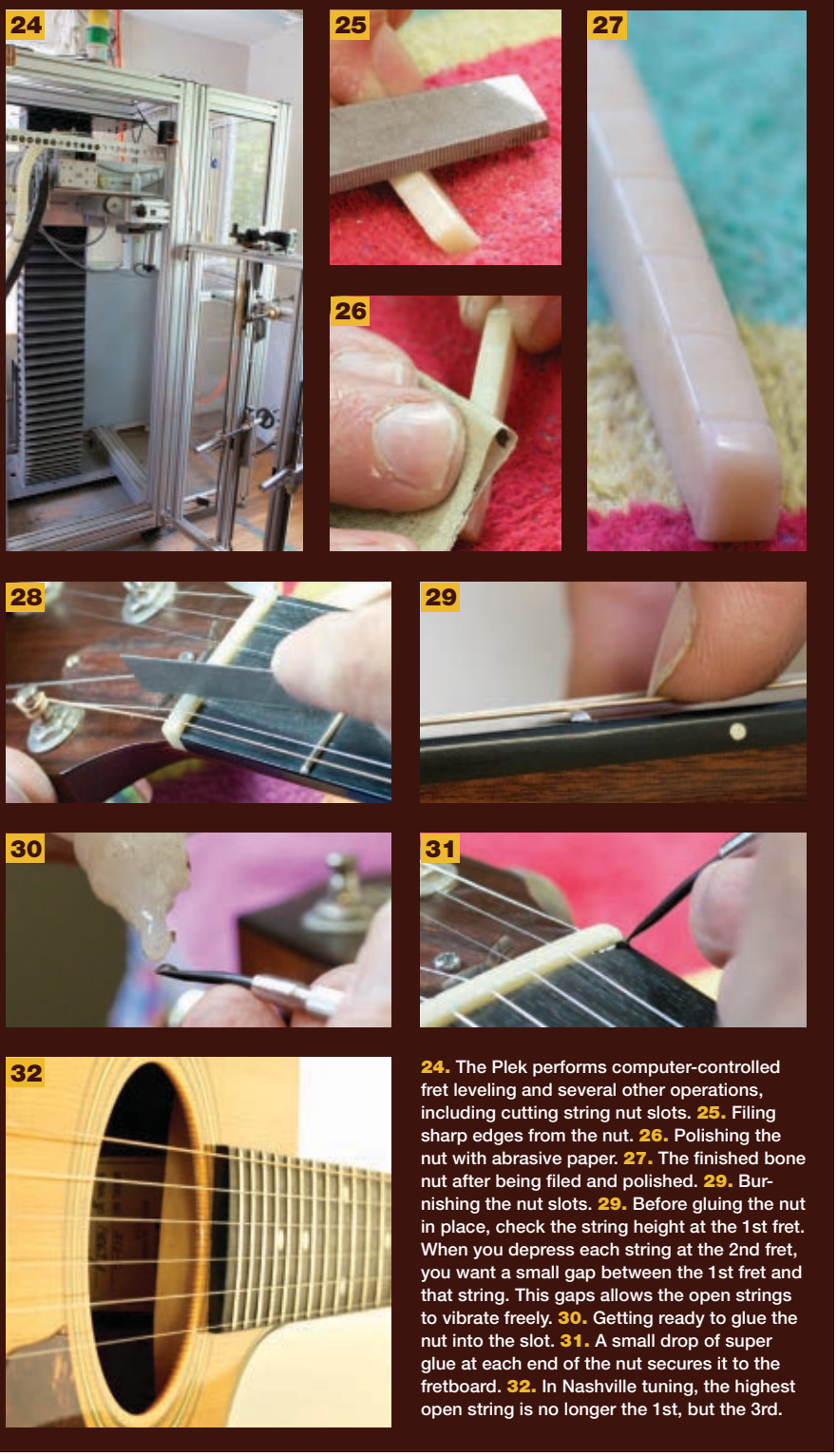
9. Now it's time to polish the nut and burnish the slots. Begin by filing off any sharp edges (**Photo 25**) and then sand the nut smooth, first with 80-grit, then 400-grit, and then finally 600- or even ultra-fine 800-grit paper (**Photo 26**).

When you've finished filing and polishing the bone nut, it should look shiny and feel completely smooth (**Photo 27**).

Next, burnish the nut slots with a very fine nut file (**Photo 28**). Be careful here—you don't want to change the depth of the slot, but simply make sure there aren't burrs or file marks in the slot that might catch a string. Some luthiers gently rub an old string through the slots to burnish them. If you do this, pick a gauge that drops easily into the slot and slides through it without resistance.

10. The final step is to glue in the nut. But before you do, string up the guitar, tune it to concert pitch, and recheck the string height at the 1st fret, using the tapping technique described earlier (**Photo 29**).

Put a small drop of super glue on the end of an old string or jeweler's flathead screwdriver (**Photo 30**) and carefully let it seep into the tiny space between the fretboard and the nut (**Photo 31**). You don't need to do this all along the nut, just at each end. The goal is simply to keep the nut from falling out when you change strings, and prevent it from shifting sideways due to string tension or string bending.



24. The Plek performs computer-controlled fret leveling and several other operations, including cutting string nut slots. **25.** Filing sharp edges from the nut. **26.** Polishing the nut with abrasive paper. **27.** The finished bone nut after being filed and polished. **29.** Burnishing the nut slots. **29.** Before gluing the nut in place, check the string height at the 1st fret. When you depress each string at the 2nd fret, you want a small gap between the 1st fret and that string. This gaps allows the open strings to vibrate freely. **30.** Getting ready to glue the nut into the slot. **31.** A small drop of super glue at each end of the nut secures it to the fretboard. **32.** In Nashville tuning, the highest open string is no longer the 1st, but the 3rd.

Have Fun Being High Strung!

And now you're done! Your flattop is reborn as a high-strung guitar. Typically, the saddle that worked for you in standard tuning will accommodate the four new octave strings just fine and offer intonation that's basically as good as it was before—sometimes even better. That was the case with our 512c, which, once we strung it up with the new nut, took to its high-strung configuration like a duck to water.

Look closely at this guitar, and you'll see that the highest string is now G—the 3rd string (**Photo 32**). On a high-strung axe, every chord form you know is automatically revoiced in new—and sometimes startling—ways. Octave displacement, an advanced composing and improvising technique, is built into Nashville tuning, and the resulting riffs, melodies, and chords should offer many years of creative inspiration.

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VAN HALEN

LIVE IN NASHVILLE!

Premier Guitar goes backstage with Eddie's and Wolfgang's techs, Craig DeFalco and Jim Survis, to bring you up-close and personal with their go-to gear.

WORDS BY SHAWN HAMMOND
PHOTOS BY CHRIS KIES

When *PG* caught up with Van Halen before their April 27, 2012, performance at Nashville's Bridgestone Arena, the only thing more thrilling than getting a guided tour of Eddie's and Wolfgang's rigs from their techs, Craig DeFalco and Jim Survis, was getting to sit through soundcheck and hear Ed, Wolf, and Alex pound out flawless versions of classics such as "Unchained" and "Runnin' with the Devil." Sadly, we can't share the unreal listening experience with you—but we *can* share our great shots of their gear. Enjoy!

EDDIE'S GUITARS

1. Of the seven guitars in Eddie's guitar boat on April 27th, this faithful recreation of his original Frankenstein guitar was just one of two red-white-and-black axes. Its only apparent departure from the original look is its EVH Wolfgang neck (it even has a screwed-on quarter and the original's over-routed bridge-pickup cavity). **2.** This crème EVH Wolfgang was one of two in the guitar hangar to feature Ed's proprietary D2H (Drop 2 Hell) bridge. It also has a kill switch near the 3-way selector. **3.** Ed uses the solid-brass D2H to drop the 6th string two-and-a-half steps or more. **4.** Eddie played this graphite-colored Wolfgang Stealth equipped with an ebony fretboard, a titanium D-Tuna, and a large red kill switch for most of the show. The tape surrounding the bridge pickup is to prevent the high E string from catching under the pickup. **5.** This tobacco-sunburst Wolfgang has an ebony fretboard with block inlays and a D-Tuna.

EDDIE'S PEDALBOARD

Eddie's current pedalboard is rather straightforward. It's outfitted with the signature Dunlop/MXR/EVH-brand pedals we've associated him with for years—including his Phase 90, Flanger, and EVH95 wah (right)—as well as an MXR Analog Chorus and a Boss OC-3 Super Octave. Says tech Craig DeFalco, "The only onstage adjustment he will make to the pedals is to the Flanger—to go from the 'Unchained' setting to the 'Outta Love' setting." It also features various custom devices made by Dave Friedman at Rack Systems, including a mute switch at lower right, and a buffer that acts as a boost to send a pristine signal along the long snake to the sound system. It also uses a G-Lab PB-1 power supply. The 4-button EVH non-MIDI footswitch in the middle of the board selects from among his main EVH 5150 III head's three channels, while the 6-button non-MIDI EVH footswitch at the front edge engages the pedals, as well as the Lexicon PCM 70 delay he uses for "Cathedral" and the dual Roland SDE-3000 delays (labeled "DDLS") that he's used since the 1980s.

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EDDIE'S RACKS

1. Eddie's two main racks feature (top) a Furman power conditioner/light source, two Shure UR4D+ wireless receivers, a Coleman Audio GT6 (for fast switching between wireless packs on different guitars), and a Shure UA845 wireless antenna unit. The rack below that houses another Furman power conditioner, Ed's pair of trusty Roland SDE-3000 delays, a set of Lexicon PCM 70s (one is a backup), and a backup SDE-3000 and SDE-3000A, and one of several vintage H&H V800 MOSFET power amps used on the Van Halen stage. **2.** Eddie has stuck with his H&H V800s for decades because of both their sound and their reliability. The three V800s shown in these racks power three of the 10 EVH 5150 III 4x12s on Ed's side of the stage—two power stereo wet cabinets, and the other powers a center dry cabinet. This rack also houses a Furman P-3600 AR G global voltage regulator, which is augmented by a Monster PRO 2500 PowerCenter (not shown).

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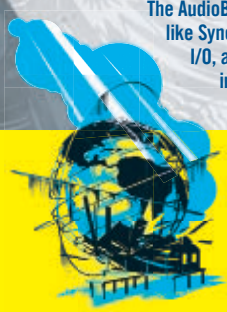

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EDDIE'S AMPS

1. This single, Groove Tubes-stocked EVH 5150 III head provides all the tones heard onstage and through the PA system. **2.** Eddie brings many EVH 5150 III heads on the road as backup, and all are dialed-in to the exact same settings as his main head. **3.** The V4 12AX7—which is labeled "Gain Tube" in big, bold lettering right on the chassis of Ed's main EVH 5150 III head—sets up the bulk of the gain for channel 3.

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STEVE STEVENS
Billy Idol
Atomic Playboys

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MISHA MANSOOR
Periphery

The Axe-Fx II is way beyond just amp modeling or effects processing! This is is the new standard for guitarists... The new "must have."

MARK HOLCOMB
Periphery

The Axe-Fx achieves every tone I want, and then some. From the new record, to everything we use live it's all Axe-Fx!

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The Faceless

The sound and feel are undeniable... I feel tube heads are going to become as relevant as VHS tapes. There's no stopping this train.

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Creed, Alterbridge

The tone is simply amazing, and that is coming from a self-admitted amp junkie. This thing delivers amps, cabs, effects, and total control

CHRIS TRAYNOR
Bush, Gavin Rossdale, Helmet, Orange 9mm

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BRIAN NUTTER
Keith Urban

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WOLF'S BASSES

1

2

3

4

5

1. Wolfgang's main stage bass is an EVH Wolfgang Stealth prototype built by Chip Ellis. It features Fender N3 Noiseless Jazz passive pickups, a rosewood fretboard, and the same Badass-style Fender bridge used on all his basses. **2.** This standard-tuned, 4-string take on dad's original Frankenstein guitar is dubbed "Booberry." It features active EMGs and a rosewood fretboard, and is primarily used for "I'll Wait" and "Tattoo." **3.** "Frankenbass" is used interchangeably with Booberry. **4.** This EVH Wolfgang features Fender N3 Noiseless Jazz pickups and an ebony fretboard. **5.** Echoing the look of Eddie's Frankenstein axe circa 1979, this Chip Ellis-built bass features a rosewood fretboard and Fender N3 pickups.

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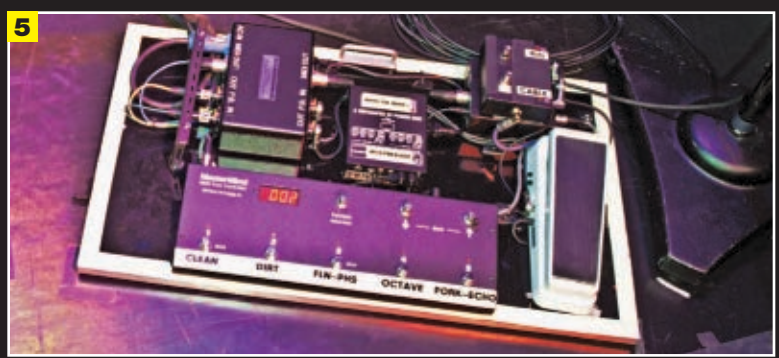
WOLF'S AMPS & EFFECTS



1. Wolf's effect rack is simpler and yet perhaps a tad more adventurous than dad's. It houses a Furman PL-Plus power conditioner/light module, a Whirlwind Multi Selector for quick changes between wireless packs on different basses, two Shure UR4D wireless receivers and a Shure antenna unit, a half-rack amp-selector built by RJM Music, and a pedal drawer housing an EVH/MXR Phase 90, an MXR Fullbore Metal, an Electro-Harmonix Micro POG, a Way Huge Pork Loin, an EVH/MXR Flanger, a Strymon TimeLine, and a G-Lab PB-1 power supply. Out of view at the bottom of the rack is an RJM Effect Gizmo Audio Loop Switcher. **2.** Most of Wolf's overdriven tone comes from the second channel of a single EVH 5150 III head driving an EVH 5150 III 4x12. **3.** Wolfgang also uses two 300-watt, all-tube Fender Super Bassman heads (plus two backups). The vintage channel of one head drives a Fender 2x15 cab, while the overdrive channel of the other drives a Fender 8x10 cab. **4.** Wolf's onstage backline, with one speaker from each of the aforementioned cabs being mic'd for the house sound system. **5.** His pedalboard features a Rack Systems signal router (top left), a G-Lab PB-1 power supply (middle), a Whirlwind A/B box (top right), an RJM MasterMind MIDI footcontroller (bottom middle), and a Dunlop Cry Baby Bass wah.

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FEEDBACK, OVERTONES, & JAGGED ELECTRICITY

Furious slide-wielding Swede Anders Osborne talks about conquering his demons, taking time with solos, and reconciling his electric live persona with his considerable singer-songwriter skills.

BY RICHARD BIENSTOCK

Given the fact that he was born in Uddevalla, a city on the southeastern coast of Sweden, you'd hardly expect Anders Osborne's voice to be flecked with a Cajun twinge. Things are not always what they seem with the 45-year-old singer/songwriter/guitarist—but that's probably to be expected, considering he and his acoustic guitar spent his late teens traveling everywhere from the former Yugoslavia to France and Israel before coming to the United States and settling in New Orleans almost 30 years ago.

"When people ask why I sound like I'm from New Orleans, I tell them it's because that's where I learned to speak English," he explains. It's also where he began his music career in earnest, first by busking in the French Quarter, and then building up a following in local clubs. "I had no dreams or visions of where my music would go at first," he says. "I was just playing on the streets. But then things slowly happened."

Osborne eventually signed to a small New Orleans label, Rabadash, and made his recorded debut in 1989 with *Doin' Fine*. Throughout the 1990s and early 2000s, he released a series of critically well-received albums that combined his love for rock, jazz, blues, folk, country, and roots music, and also made a name for himself as a professional songwriter—most notably as cowriter of Tim McGraw's 2003 country hit "Watch the Wind Blow By."

But the last few years have seen a distinct shift in Osborne's sound. His most recent records—2010's *American Patchwork* and the new and excellent *Black Eye Galaxy*—continue to feature his characteristic mix of hummable acoustic and electric numbers, but the electric-guitar based songs are now decidedly brawnier and infused with layers of squalling 6-string work, much of it on slide. Osborne credits this stylistic shift to several factors, including a change in attitude and perspective following a drawn-out and hard-won battle with substance abuse. But it's also because his records are now a truer reflection of his live shows, which have always been heavily focused on his guitar playing.

On a broader level, it can perhaps be said that Osborne's sonic progressions are the consequence of a lifelong restless spirit. When he made the decision as a teenager to leave his home in Sweden, he recalls, "I remember waking up on a Tuesday and saying, 'I have to get the [expletive] out of here. I can't stay another minute.' And on Thursday I hitchhiked out." Likewise, when it comes to music, he says, "I'm still searching all the time for things to inspire me. For most people, the stuff you listen to when you're 10 to 14 years old, that tends to be the only music you really ever purely love. After that, you just analyze and criticize. You're constantly comparing to your first musical impressions. I'm trying to step out of that as much as I can. I'm still trying to find that next thing."

You pull from numerous American music styles. As a native Swede who's lived all over the world, do you feel that approaching these genres from the perspective of an outsider has had an effect on how you interpret them?

That's an interesting thing and I've thought about it before. As far as considering my own origins in terms of the type of music I play, the truth is I don't really know how it fits together. If I were to speculate, I'd simply say that if the language of music is something that comes naturally to you, then you don't separate things very much. You know your geography, you know where you're from, but stylistically you don't consider that at all as you're taking in influences. Me being a musician—as opposed to, say, an author or a carpenter or something like that—what I do is I interpret the language of music. That's the world I've always been in. When I heard Robert Johnson at a certain age, it did something to me. When I heard ZZ Top or Kiss or Sweet, it did something else to me. Then later on it was John Coltrane, Neil Young, Dylan. You bring them all in and then you start to eliminate the ones that don't stick. What remains becomes your language.

***Black Eye Galaxy* is your most assertive and guitar-centric record to date. You employ a lot of distorted tones, and several of the songs feature extended solos. What led you in that direction?**

I think partly it was coming to an understanding of what I do well. As I've changed my spiritual path and stopped abusing myself mentally and physically with the other stuff, everything cleared up a little bit. You recognize what you're good at and what feels good. It's become more and more evident to me over the last few years. I think it started with *American Patchwork*, where Stanton [Moore, drums] brought out a lot of small details in my playing. One of those was to really distort and crank the guitars in the way he perceives I do it onstage. He said, "Let's work on your tone so that you don't get too sweet and too cutesy on the record." We just kind of developed a sound. I hadn't done that since the mid-'90s, which was the last time I had a big guitar rig. From doing that and gaining a better understanding of what I liked—and also what people responded to in the live show—when it came time to make this

Photo by Jerry Moran

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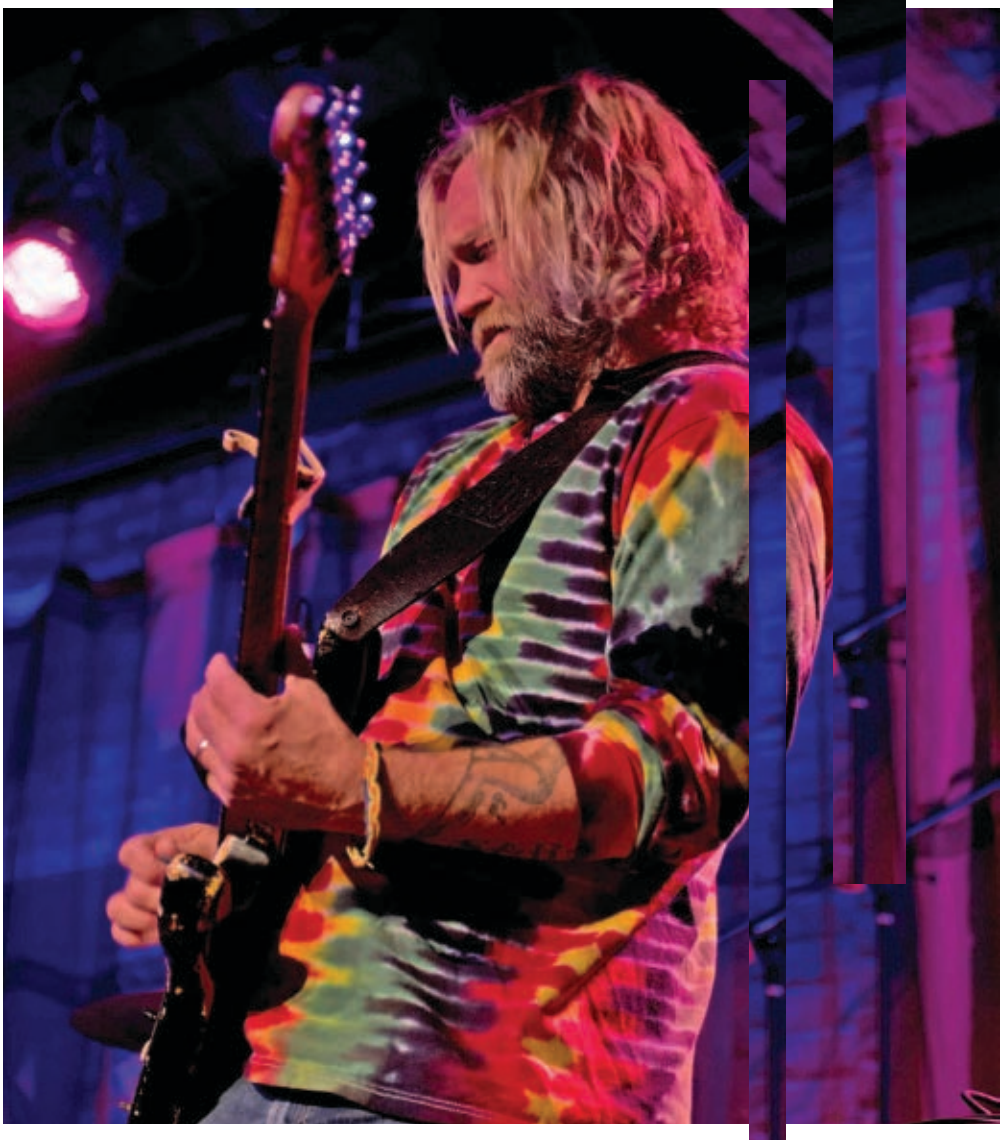

Photo by Paul Natkin

YOUTUBE IT

Listen to the jagged electric blues coming out of Anders' "mutt" black Strat, as he employs his unorthodox picking style at 4:30.
Search term: Anders Osborne – Black Tar - live

This performance at The Independent San Francisco showcases Anders improving to find the groove with drummer Stanton Moore's band.
Search term: Anders Osborne with The Stanton Moore Trio – "Boxes, Pills and Pain" (Part One)

Anders unleashes his inner Cajun Swede on "Louisina Gold" from his latest album, *Black Eye Galaxy*.
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record, I made sure I had material that would work well onstage.

To what extent are the new solos improvised—especially on the 11-minute title track?

The whole middle section of the title track is all improv. We just worked out what would serve as home base—where we'd come together on a riff or a line—and then go on to the next part. We were all playing together in the studio, and we'd get to a certain point in the song and just look at each other, nod, and start the count off for everyone to go into a lick together. Then we'd go on to the next improvisation. I think there are three home bases in that song, and having those frees you up. You know that, whenever you're through saying what you need to say, everyone will come together.

This record is very Neil Young-like in the sense that your acoustic work is often quite clean and exacting, while your electric playing is more ragged and unorthodox.

I can see that. Neil is definitely an influence in terms of that wandering approach on electric. I like to have that element of searching and taking your time. You start with something melodic and then keep building and taking the improvisation further out, gathering feedback and overtones and the jagged things going on in the electricity. You explore. I like that in Neil and I love that in Coltrane.

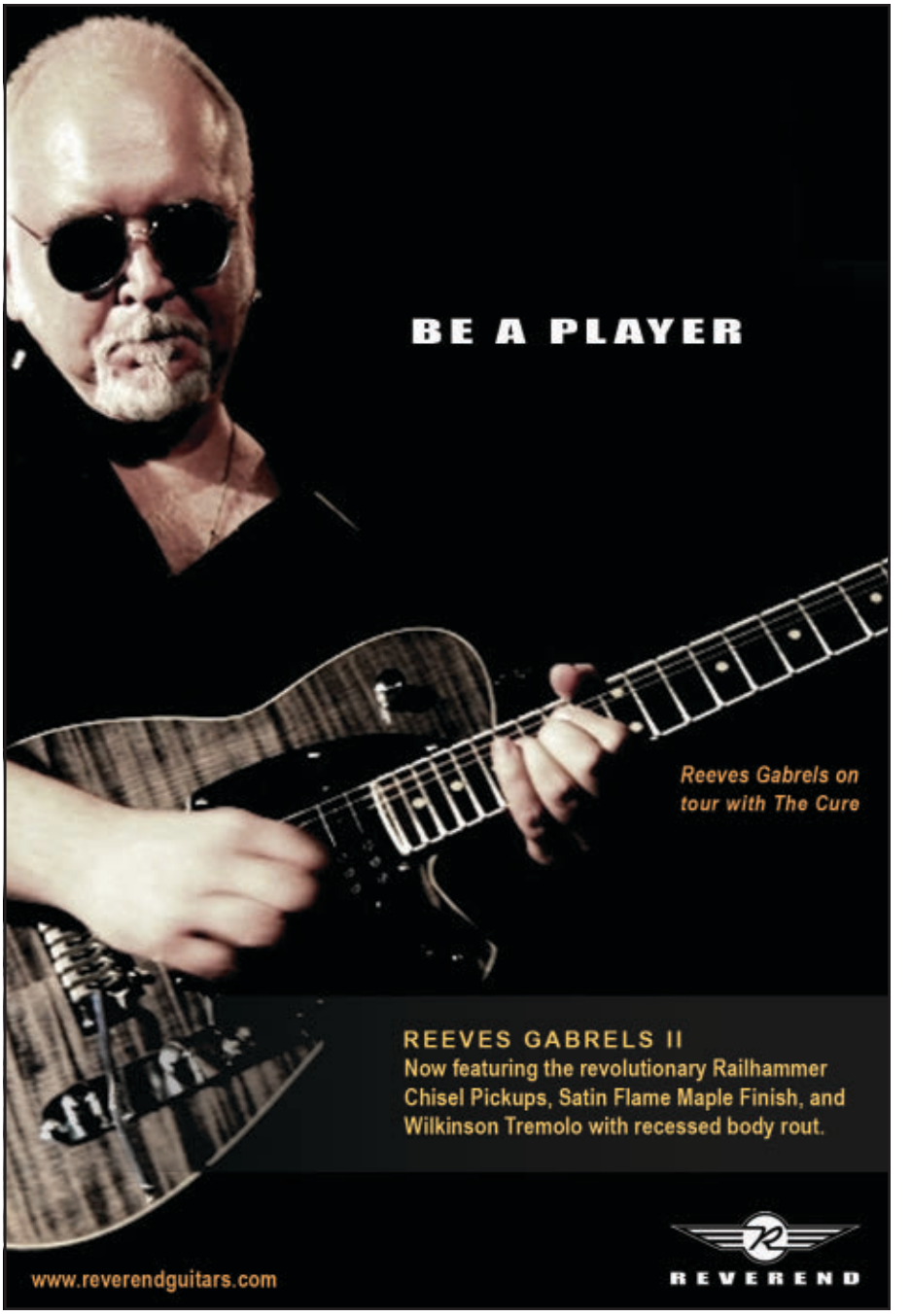
A lot of the new lyrics are pretty direct rather than flowery or metaphorical. On "Mind of a Junkie," in particular, you paint a stark self-portrait. Is it difficult to be so self-critical?

When I first started working out the lyrics, it was a completely different thing: I was sketching ideas around the melody, and I liked the chorus I had—I felt it gave the song a real lift, and I thought it could be really beautiful and powerful.

> It's a comfort thing for me to have the slide on the pinky ... It's like, if I have an open tuning and a glass slide, all of a sudden I feel safe.

But then my wife heard it and she said, "That's not how you feel. Why don't you just write down how you actually feel." She was basically saying, to use your term, that it was too flowery. It seemed poetically put together. A lot of bullshit lines. And that triggered me. I said, "Okay, I'm going to write exactly how it works when I'm not doing good." And once you start doing that, it's almost addictive in and of itself. It's like working your own program, 100 percent. You're just letting it all out. It's a great exercise and I highly recommend it to anybody. But there are definitely nights I play that song that are a little bit uncomfortable.

You have an unorthodox guitar style: You play with a pick, but you occasionally hit notes with a finger on your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picking hand. How did you develop that approach?
I think it was unconscious—it just evolved. At some point I realized there were certain runs and things I wanted to do faster, and I couldn't quite get to the notes quick enough with just a pick. So I just started grabbing them with a finger. It especially helped that I tend to use open tunings. Open tunings are great when you're soloing, because they open up the fretboard—you can go across the strings as much as do the vertical scale thing. You play horizontally a lot more. So I'd hold down a chord formation and just drill it with my fingers. With a pick, for me, the movement almost comes more from my shoulders. With my fingers, I can move much more effortlessly.

Do you mostly play in open tunings?
It comes and goes. Right now, I'm about 50/50—but it used to be 90/10 in terms of open tuning versus standard.

What tunings do you favor?
Open D, for the most part, because it gives me some nice low end. There are a bunch of open D songs on the new record: "Send Me a Friend," "Black Tar," "Black Eye Galaxy"….

… A lot of the heavier material.
Oh yeah. I put on real heavy strings, .013–.054s, and raised the action, so there's big tone. That helps with the slide, as well.

Onstage, you're never without a slide—you switch between slide and fretting notes pretty seamlessly.
It's a comfort thing for me to have the slide on the pinkie. Even if I don't need it—and I could certainly use that extra finger sometimes—it's almost a little security blanket. It's like, if I have an open tuning and a glass slide, all of a sudden I feel safe.

Which specific players influenced your slide work?
In my early years, certainly Ry Cooder. He doesn't play heavy, but he plays a different kind of heavy. That's one of the debates I had with Stanton—that, a lot of times in the past, I had been a little too tongue-in-cheek and comical in my slide approach. Doing those fun, cool

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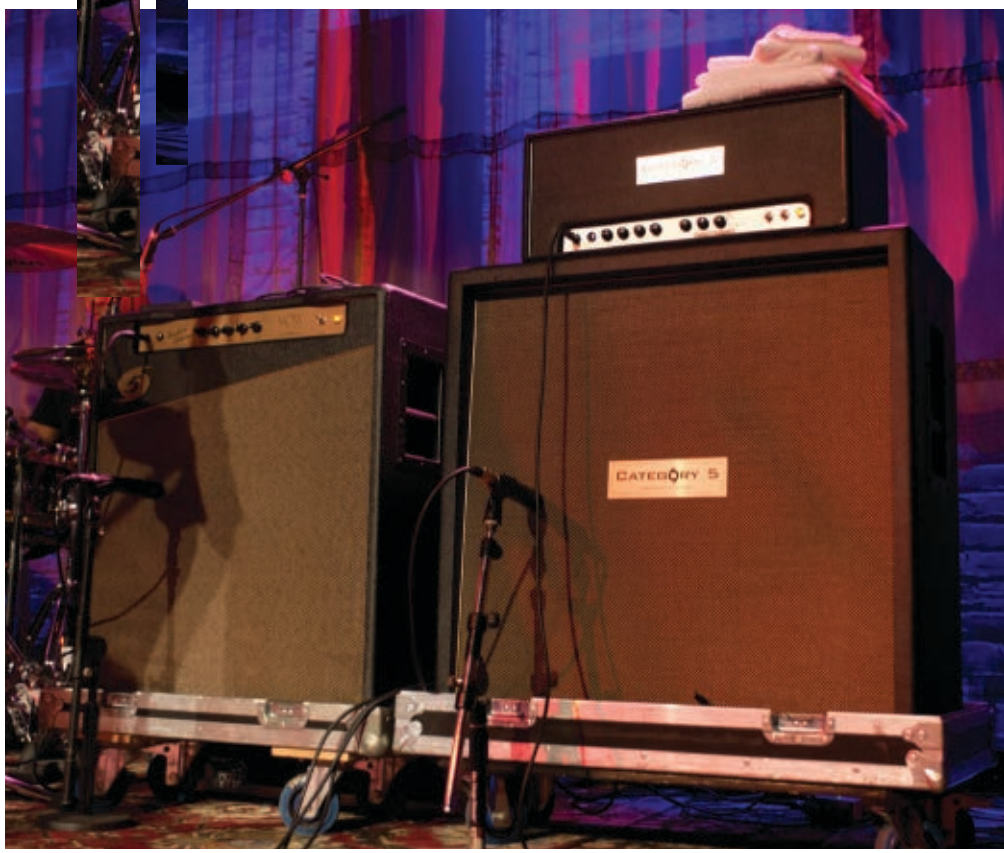
little licks. Live, I would play really heavy, with a really big tone, but on my records I would always bring it back into Ry Cooder-land. That's stopped now.

Tell us about your primary stage guitar—the black Strat that looks like it's been put through the ringer.

[*Laughs*.] Yeah, I got that guitar in 1986, and it's a mix of things: It has a '68 body and what I believe is an early-'80s custom bird's-eye maple neck, with an African ebony fretboard. There's a metal pickguard, and there used to be a Seymour Duncan Hot Rails pickup in the middle position but I swapped it out and put a stacked humbucker in there. The other pickups are stock. It's banged up, and there's a tone knob missing at the moment, as well.

So it's something of a mutt.

It is. It was already modified to how it is now when I got it, except for that middle pickup. I saw it at a music store in New Orleans and the guys working there didn't even know what it was. So they charged me 170 bucks for it. But it's an interesting guitar. It's not even originally black. You can see that it had this beautiful, creamy sunburst finish that was just painted right over. Somebody messed it up real good, but it's perfect for me—I love it—and it's been my main guitar ever since.



ABOVE: Osborne's Category 5 VOW signature 4x10 combo (left) and 1900 head driving a 4x12. **RIGHT:** His main Strat has a '68 body, an ebony-topped '80s neck, and stock pickups except for the middle unit, which has recently been switched from a Duncan Hot Rails to a stacked humbucker. Photos by Paul Natkin

Anders Osborne's Gear

GUITARS

Fender Strat with '68 body, Fender 1962 Strat reissue, Fender 1957 Strat reissue, Gibson Les Paul Standard goldtop with P-90s, 1959 Gretsch 6118 Double Anniversary, 1966 Guild Starfire V, 1969 Martin D-18, 1963 Gibson B-25, 1961 Gibson J-45, custom McAlister flattop, Yamaha AC3R, Yamaha CPX1200

AMPS

Category 5 signature VOW, Category 5 1900 models

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Forgotten Heroes

Unsung Players Who Shaped Guitar as We Know It

CAROL KAYE

BY BILL MURPHY

If you want something done right, don't just do it yourself—hire a professional. That was the prevailing mindset among record producers back in the early '60s, especially when it came to making hits. From the Brill Building to Motown to Hollywood, pop music in America had reached a fever pitch by the time the Beatles crossed the pond, and the pressure was always on to keep delivering the goods. Sam Cooke's soulful gravity, Diana Ross' diva allure, or Phil Spector's Wall of Sound could easily spark a hit in those days, but a song's success hinged just as much on the writers and session musicians who worked tirelessly behind the scenes.

So who got these gigs, anyway? For most recording dates, the first call was reserved for players who had established reputations for being reliable, versatile, and rock-solid on their chosen instrument. And if you were first call in Los Angeles, that probably meant you were part of "The Clique"—a loose collective of a few dozen young, hungry jazz heads from the city's thriving nightclub scene that was later dubbed "the Wrecking Crew" by drummer Hal Blaine.

Carol Kaye was one of those up-and-comers, and while for some it might be a bit of a stretch to call her a *forgotten* hero of the West Coast's studio heyday, she's certainly long overdue for wider recognition. Her fluidly picked Fender bass lines have propelled classic songs by the Beach Boys, Simon & Garfunkel, Joe Cocker, Frank Sinatra (and his daughter Nancy), Ray Charles, Lou Rawls, Glen Campbell, Barbra Streisand, Sonny & Cher, and the Monkees, to name just a few. In the '60s and '70s, Kaye was also the go-to bassist for numerous record producers and film score composers, including Quincy Jones, Michel Legrand, Phil Spector, Lalo Schifrin, David Axelrod, Jerry Goldsmith, Henry Mancini, Billy Goldenberg, and way too many more to mention here. She has played on literally thousands of studio dates, and that's without even counting her years of work on guitar—which is how she got her start in 1957, on a session for Sam Cooke. At the time, she was barely 21 years old.

Photo courtesy The Wrecking Crew

Carol Kaye

Born: March 24, 1935

CLICK HERE
to hear a musical sample of Kaye's hallmark style at premierguitar.com/sep2012.

Best Known For: One of the most prolific bass players in history, Kaye has logged more sessions than just about any guitarist or bassist, including more than 10,000 recording sessions with artists like the Beach Boys, Sam Cooke, Frank Zappa, Richie Valens, Simon & Garfunkel, the Righteous Brothers, Ray Charles, and many, many more.

A Carol Kaye Time Line

1935
Born Carol Smith on March 24 in Everett, Washington

1947
Begins guitar lessons, plays first paid gigs at age 14

1954
Tours with the Henry Busse Orchestra, and eventually weds upright bassist Al Kaye

1957
Lands first studio gig playing acoustic on Sam Cooke's "Summertime (Pt. 2)"

1961
Plays first session with Phil Spector at Gold Star Studios

1963
Picks up a bass for the first time at a Capitol Studios session

1965-1966
Records most bass parts for the Beach Boys' Pet Sounds

1966
Plays on the Beach Boys' "Good Vibrations," Nancy Sinatra's "These Boots Are Made for Walkin'," and the Mission: Impossible *theme*

1972
As work with the Wrecking Crew begins to taper off, teams with Joe Pass for recordings and live dates

1973-1974
Records Hampton Hawes' Northern Windows *and plays a Gibson Ripper bass on tour with him*

1976
An auto accident and a subsequent bout with arthritis forces Kaye to dial back her gigging and recording dates

1981
Appears on J.J. Cale's Shades, *and continues to perform and teach until the mid '80s*

1994
Undergoes corrective surgery for arthritis

1999
Records Matthew Sweet's In Reverse

2006-present
*Records with Frank Black (*Fast Man Raider Man, *2006), Money Mark (*Brand New by Tomorrow, *2007), and continues to teach, record, and perform*

"Most of the producers in the '50s went out to jazz clubs," Kaye recalls today. "Some of them were even jazz players themselves, like Bumps Blackwell. He was a very fine vibes player, and he managed Little Richard and he was producing Sam Cooke. I was playing guitar with the Teddy Edwards' jazz group—Ornette Coleman used to sit in with us sometimes, because Billy Higgins was the drummer. Bumps heard me playing, and he needed a guitar player to step in for René Hall, to play some fills in back of Sam Cooke, so he asked me if I wanted the job. Teddy and Billy knew Bumps, so I took him up on it because I needed the money. I remember on the way to the date, I heard 'You Send Me' on the radio. That prepared me for what was coming."

Learning from "the Hatch"

Born in 1935 in Everett, Washington, Kaye grew up in a musical household: Her father was a touring trombonist with jazz big bands, while her mother played piano professionally. In 1942, the family moved to Wilmington, California. Four years later, Kaye's parents split up, but her mother could see that 11-year-old Carol was musically inclined, so she bought her a $10 guitar. It wasn't long before a friend of Kaye's suggested she look up the "hottest" guitarist in nearby Long Beach—an experienced teacher named Horace Hatchett—for some lessons. Kaye had a natural aptitude for the instrument, and within a few months, she was helping "Hatch" teach some of his other students.

Kaye's apprenticeship gave her a solid foundation in jazz rudiments, from Charlie Christian to Django Reinhardt. By 14, she was playing semi-pro jazz gigs and had saved up enough through her work with Hatchett to buy a Gibson Super 400, which she outfitted with a DeArmond pickup for live gigs (evidence indicates she likely used a Gibson GA-20 amplifier). When Bumps Blackwell found her several years later, she was playing an Epiphone Emperor, which she brought with her to the Sam Cooke session.

Needless to say, it was unusual for a woman to be sitting elbow-to-elbow with seasoned studio musicians in what was widely accepted as a "man's game" in the late '50s. "In my day, there were few who could really cut it," Kaye told MEOW (Musicians for Equal Opportunities for Women) online last year, "and we were very welcome. Most of us had learned early on to treat the men nice and fair, and how to handle some of the obvious put-downs. Usually we handled it with tart humor, giving it back to them. And if all else failed, then we just picked up our horns and blew them away with music."

Kaye's first studio date with Cooke, which yielded a steamy reworking of Gershwin's "Summertime" (the eventual B-side of "You Send Me"), brought her a wave of subsequent dates on guitar. Cooke had been signed to Keen Records, which employed Bob Keane as an A&R man. Keane later discovered and managed Ritchie Valens, who recorded "La Bamba" in 1958 with a backing group that featured Kaye on acoustic guitar, Valens on electric rhythm, René Hall on lead guitar, Bill Pitman on bass, and Earl Palmer on drums. "La Bamba" was one of Kaye's first sessions with Palmer, and it sealed a lifelong friendship between the two.

"La Bamba" was also tracked at Gold Star Studios in Hollywood—one of a ring of independent studios (including Western Recorders and Sunset Sound) that was churning out hits in the late '50s and early '60s. As it happened, Phil Spector had taken up de facto residence at

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Gold Star, and by 1961 he was regularly booking studio time and working with a number of different vocal groups, including the Crystals, Bob B. Soxx & the Blue Jeans, the Paris Sisters, and more. Kaye played guitar—sometimes the Epiphone, sometimes a Gibson 12-string, and later, a Fender Jazzmaster—on many of these sessions, including the 1962 Blue Jeans hit "Zip-a-Dee-Doo-Dah" and the Crystals' classic "Then He Kissed Me." But her profile kicked into high gear on the Spector-produced sides for the Righteous Brothers, which included "You've Lost That Lovin' Feelin'," released in 1964. Kaye's acoustic guitar part stands out prominently against Bill Medley's lead vocal, revealing the essence of her style—a solid, steady rhythm accentuated by individually picked notes articulated with clarity and precision.

Bass Is the Place

By this time, Kaye was part of an elite and loosely connected group of guns for hire—accomplished jazz musicians who were suddenly making a career out of playing pop, rock, and R&B. And then one day in 1963, she showed up for a session at Capitol Studios that changed everything.

"At that point, I'd been hired on guitar for five years," she says. "I never even thought I'd ever play bass. That thought just never occurred to me, but on that day, the bass player didn't show up, so they put me on bass and I found that I liked it immediately. I saw the potential for it, because I realized then that a lot of the hit records depended upon the role of the bass. And it was much more fun to invent on bass than the rinky-dinky guitar stuff that I had to do. It just felt comfortable."

As she had on guitar, Kaye quickly established a signature sound. The Fender Precision was the favored axe of the day, but it was often supplemented on studio recordings with an upright bass to lend some roundness to the low end, or a Danelectro bass guitar to add a more prominent "click" to a picked bass line. Kaye played with a pick, but eventually she devised a way to cover all three bass sounds, using a combination of tone control and muting.

"Guitar players would use a piece of felt intertwined between the strings and behind the bridge to get a nice sound," she recalls. "So I noticed right away that I had to do the same thing for electric bass, because the thicker basses had a terrible time with overtones and undertones, which killed the sound. The minute I put the mute on the top of the strings, in front of the bridge—there was no way to get a mute *behind* the bridge because that was the end of the strings—I noticed the tone immediately. I mean, for 25 cents, you could get the best sound in town [*laughs*]."

Kaye usually played at low volume in the studio and preferred the sound of guitar amps. She bought two Fender Super Reverbs, one of which would be carted to every studio date before she arrived. Eventually, she went for a smaller enclosure with the Versatone Pan-O-Flex. As she got busier, she rotated three of these for her studio work and kept one at home. For years, she used a sunburst

MUST-WATCH MOMENTS

Carol Kaye says of her own bass style, "When you hear somebody with balls, that's me." You can witness her illustrating this point in the following YouTube clips.

If you're going to cut heads on bass with some of the youngsters, you might as well pick the best. Kaye gives Steve Bailey and Victor Wooten a run for their money on an extended funk groove.
YouTube search term: Carol Kaye, Steve Bailey & Victor Wooten Bass Session NAMM Show 2000

Danny Tedesco has temporarily put the brakes on his ambitious documentary, *The Wrecking Crew*, while he secures rights for the film's soundtrack, but this trailer gives you a glimpse of the key players, including Kaye.
YouTube search term: The Wrecking Crew: Movie Trailer

Kaye has been a fixture at NAMM trade shows since the late '90s. Here, she invites jazz giant George Benson to sit in on an impromptu jam. Check the licks starting at about 2:00.
YouTube search term: George Benson, Carol Kaye_Jam

HALLMARKS OF KAYE'S STYLE

First and foremost, Carol Kaye is a jazz player, but what really informs her approach to the bass is her technical foundation on guitar. In the '60s, most session bassists played with flatwound strings and a pick (with James Jamerson, who always played with his index finger, being one of the key exceptions). Bass pickups had lower output back then, so the strings had to be plucked with authority, and roundwound strings tended to chew up a pick in short order.

The basics of Kaye's guitar style come through in her earliest recordings from the late '50s and early '60s. The sound of her Epiphone Emperor sometimes captured Django Reinhardt's acoustic tone, but the melody and rhythm were usually stripped down, simple, and direct—de rigueur for pop ballads with a rock 'n' roll or soul flavor. **Fig. 1** is a straightforward F♯m–C♯ vamp similar to many of those she was asked to play. While parts like these were rarely demanding from a technical standpoint, they still had to be delivered repeatedly and *flawlessly*—no mean feat when you're on the clock in a studio.

Kaye was rarely satisfied with playing a straight bass part. She loved the opportunity to play more melodic lines that made use of the upper register (**Fig. 2**), as was often the case when an upright bass was brought in to round out the low end. For parts likes this example, she used a simple rhythmic motif and moved it down gracefully through the changes, focusing on chord tones and syncopation.

Sometimes Kaye improvised between takes if she felt a part wasn't working. Over a simple C7 groove, she would play something like **Fig. 3**. Combining a slight twist of syncopation with simple note choices and a solid time-feel, she could liven up a bass line that a few minutes earlier had been lackluster.

Fig. 1

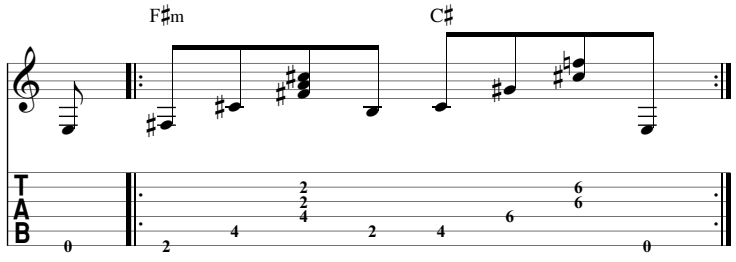


Fig. 2

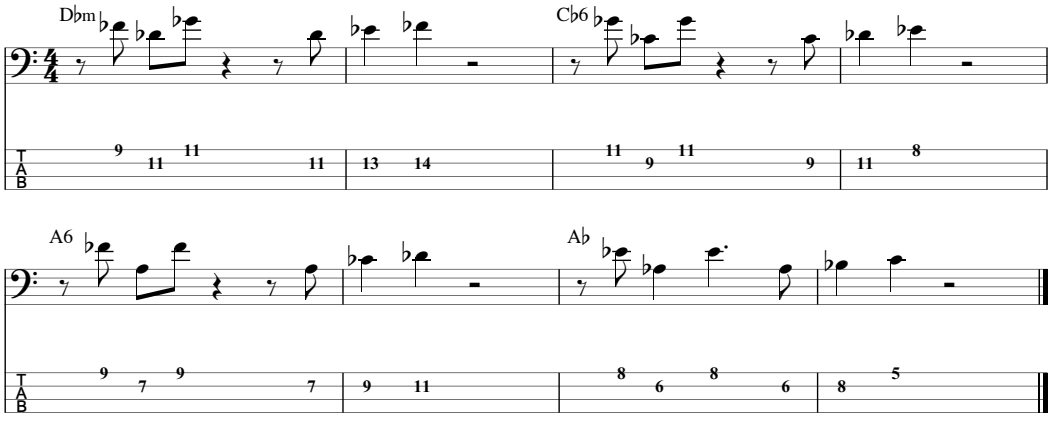
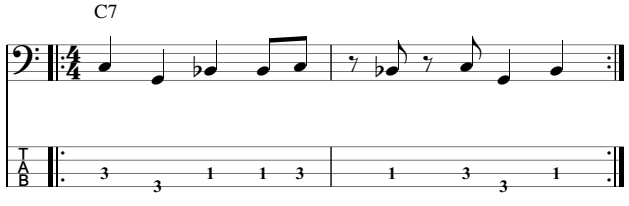


Fig. 3

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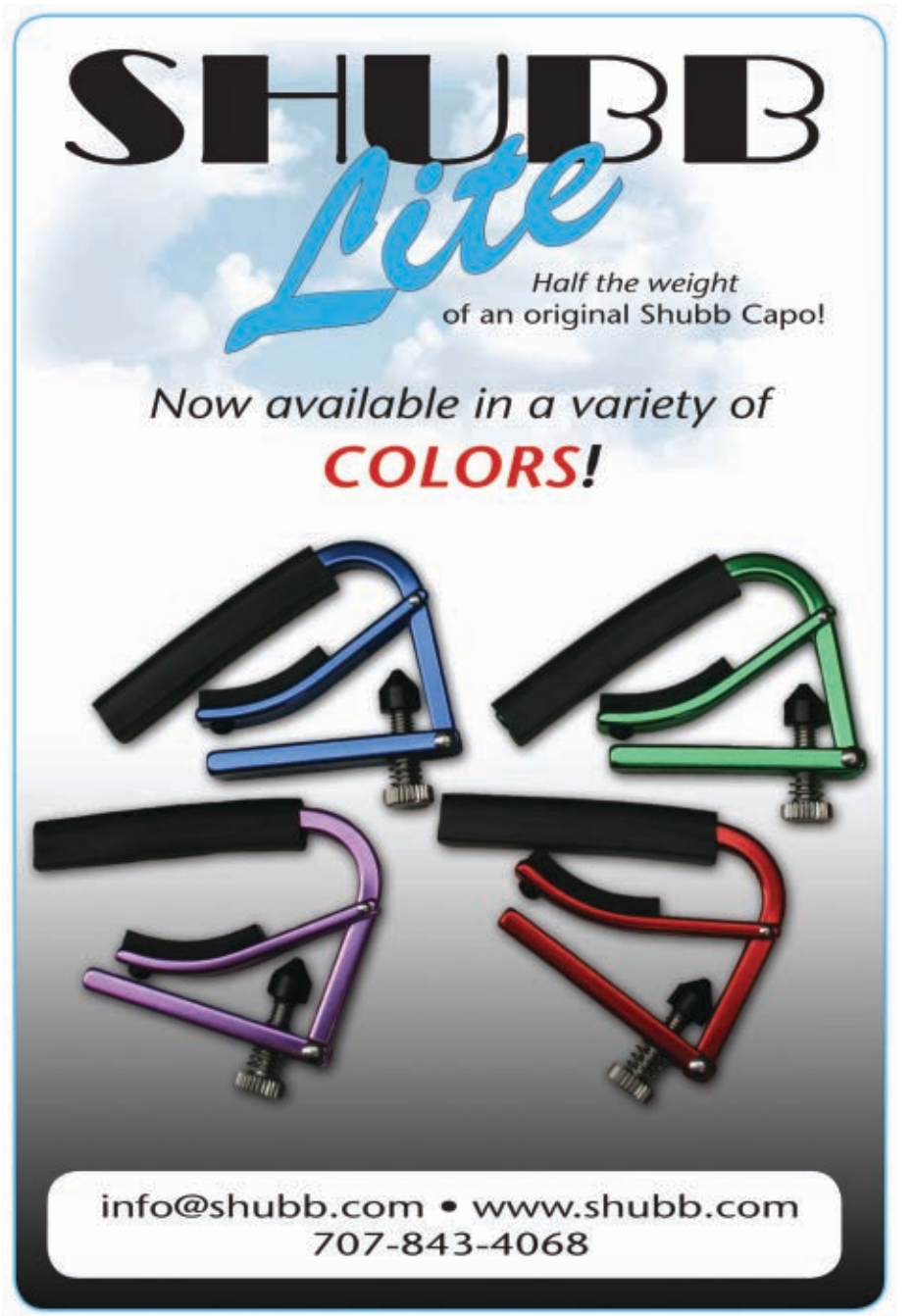
Fender Precision with flatwound strings. She kept the action high, which meant she had to play *hard* to be heard—no easy feat if you were doing fast left-hand changes or up-tempo "boogaloo" lines.

One up-and-coming producer who took note of Kaye's versatility was future legend Brian Wilson. An avowed fan of Spector's "Wall of Sound" production style— at Spector's invitation, he'd even dropped in several times at Gold Star—Wilson wanted to expand the Beach Boys' established "surf rock" sound into something much more lush and sophisticated. The changes in direction he suggested were destined to sow the first well-documented seeds of dissent within the band, but Wilson forged ahead by hiring outside pros to get the sound he heard in his head. Kaye was among the group of musicians recruited in early 1965 to record backing tracks for *Today!* and *Summer Days (and Summer Nights!!)*, released in rapid succession that spring and summer.



"Brian was a nice, sharp young kid, and he caught on real fast," Kaye recalls. "He usually knew what he wanted, and he wrote his own parts—which was very different from other recording dates we did. He was open to the guitars making up some parts, as well as drums, but he wanted me to play *his* notes on bass, which was fine—he wrote some great parts that fit well with what he intended for the rest of the arrangement."

Kaye was one of three bassists—the others being Ray Pohlman and Lyle Ritz—whom Wilson would turn to most frequently for sessions throughout 1966 and '67. On the Beach Boys' classic *Pet Sounds*, she became a key anchoring presence, with Wilson pushing her forward in the mix on songs like "Sloop John B" and "Wouldn't It Be Nice." By the time Wilson got around to recording tracks for *Smile*—the grandiose but ultimately ill-fated magnum opus that pushed him into a spiral of self-doubt and seclusion—the sessions were reaching marathon proportions, but Kaye and the other players took it in stride.

"He'd spend three or four hours on one song, whereas usually in a three-hour record date we'd cut four or five tunes," Kaye told author Mark Dillon for *Fifty Sides of the Beach Boys: The Songs That Tell Their Story*, published in June. "We played every tune and every take like a hit record. It got a little boring because Brian would change things back and forth all the time. But we stuck it out because we knew what he was doing and we admired him. And that admiration and respect got across to him and helped him to grow and feel safe with us."

That mutual trust was the driving force behind "Good Vibrations," the centerpiece of *Smile*. Cobbled together from multiple dates and takes, the official version contains possibly five different performances on bass. Kaye remembers the descending figure in the opening verse as hers, and she certainly played the song in its entirety on at least one session at Western's Studio 3.

While Kaye's work for the Beach Boys alone could cement her place in rock 'n'

roll history, her discography for the 10-year stretch between 1963 and '73 is so vast that it borders on the superhuman. See the sidebar to the right for some of the more colorful highlights.

The Big Score, the Big Break ... and the Big Payback

On top of her work in rock, pop, and R&B, Kaye was equally in demand for film and television scores—perhaps most famously with Lalo Schifrin, whose *Mission: Impossible* theme remains an iconic blast of late-'60s pop culture. She also contributed to Schifrin's *Bullitt* soundtrack, including some of the cues that lead up to the film's iconic car-chase scene. "He wanted me to invent all kinds of notes and double-time," Kaye recalls with amusement, "and I just looked at him like he was crazy, because the tempo he was asking for was so fast. But I did it, and I just cringe when I hear it because it's a boogaloo in double-time—I mean, *really* fast."

Many of the scores being composed in the late '60s and early '70s were complex

CAROL KAYE HIGHLIGHTS

Herb Alpert
Whipped Cream & Other Delights
(1965)
Nancy Sinatra
"These Boots Are Made for Walkin'"
(1966)
Ike & Tina Turner
"River Deep – Mountain High"
(1966) – produced by Phil Spector
Ray Charles
"I Don't Need No Doctor"
(1966)
The Monkees
"The Day We Fall in Love"
(1966)
The Mothers of Invention
Freak Out!
(1966) – 12-string guitar
Sonny & Cher
"The Beat Goes On"
(1967)
Glen Campbell
Wichita Lineman
(1968)
Jimmy Smith
Livin' It Up
(1968)
Motherlode
When I Die
(1969)
Joe Cocker
"Feelin' Alright"
(1969)
Lou Rawls
"A Natural Man"
(1971)
Quincy Jones
Smackwater Jack
(1971)
Barbra Streisand
"The Way We Were"
(1973)

orchestral affairs, and thus perfectly suited for Kaye's jazz background. With Quincy Jones in particular, there was a musical symbiosis that carried over into the making of 1967's *In the Heat of the Night*, for example. On kinetic cues like "Nitty Gritty Time," Kaye matches the percussive horn hits punch-for-punch, demonstrating an innate sense of knowing when *not* to play.

"By its content, we knew this was a 'heavy' movie, and the music was powerful," Kaye says. "I played the Fender, but Quincy liked me on the [Maestro] Fuzz-Tone with my Danelectro bass guitar, too. So during the breaks, I'd unplug all the pedals to jam some bebop, and then it was back to the deep emotional music of the film. Quincy is a genius, there's no doubt about it. He wrote some of the most beautiful themes I've ever heard in my life—let alone had the pleasure of playing on."

Around 1969, Kaye took a brief break from recording to write an instructional book—as a single mother, she had bills to pay, but she also loved spending time with her kids. *How to Play the Electric Bass* became a trend-setting bible, and eventually led to a whole line of books and videos that Kaye continues to build on. It was a completely different mindset from the coffee-driven routine of playing long hours in the studio, and it may have had something to do with Kaye's decision, in the early '70s, to cut back on her freelance hours and commit to some more in-depth collaboration. She recorded and toured with Joe Pass, and then with Hampton Hawes, and was still doing studio dates as late as 1976, when she was sidelined after a car accident.

One thing that has always distinguished Kaye's playing, whether she's digging into a jazz, pop, soul, or rock bass line, is her firm sense of *pocket*. Above all else, first-call musicians had to be able to hold down a steady rhythm—no click tracks allowed (or even considered, for that matter).

Kaye kept it up into the '80s, appearing on J.J. Cale's *Shades* in 1981, but the physical toll of her injuries eventually forced her to take a lengthier hiatus from playing and performing. After corrective surgery in 1994, she gradually found her way back to the instrument, and by 1997 she was working with Brian Wilson again—this time on his daughters' debut *The Wilsons*. In 1999, Kaye was invited to play on the entirety of Matthew Sweet's outstanding *In Reverse* album, which reintroduced her to a ravenous new school of rock, soul, and hip-hop artists. Pixies frontman Frank Black recruited her for his 2006 album *Fast Man Raider Man*, as did longtime Beastie Boys collaborator Money Mark for 2007's *Brand New by Tomorrow*. Both projects reunited Kaye with legendary drummer Jim Keltner—another late-'60s fixture on the Hollywood session scene.

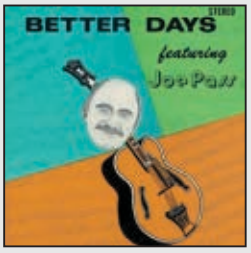
A Legacy of Rocking Steady

One thing that has always distinguished Kaye's playing, whether she's digging into a jazz, pop, soul, or rock bass line, is her firm sense of *pocket*. Above all else, first-call musicians had to be able to hold down a steady rhythm—no click tracks allowed (or even considered, for that matter). It's a simple but somehow elusive concept that she still imparts to her students, if only because its importance seems to have diminished in the relentlessly programmed experience of making music today.

"For everybody back then, the main consideration was time," Kaye explains, "especially in the jazz world. Even the finest of drummers—I mean, Billy Higgins practiced with an electric metronome beating on two and four, because when you played jazz, everybody has to be of one mind. With the intertwined thing that goes on, one person's playing directly affects the others. There's no such thing as the bass player's role, or the drummer's role, or the piano's role. They're not separate in jazz, see, but in rock 'n' roll and fusion they are, and that's where you have to be prepared. A lot of people today are just into flash, but we were never concerned with that. Music only sounds good when it's played with the greatest of time, and that's what we did, absolutely."

ESSENTIAL LISTENING

Besides the obvious classics by the Beach Boys, Phil Spector, and more, here are a few gems that showcase Carol Kaye's uncanny versatility.



Joe Pass
Better Days (1971)
Swinging, solid, and shockingly funky, *Better Days* is rife with grooves (anchored by Kaye on electric bass, Ray Brown on upright, and Earl Palmer on drums) that could move any hip-hop producer to go sample-crazy. Of course, it helps to have Pass laying down his crisp guitar licks and Joe Sample digging hard into Fender Rhodes and clavinet.

Ray Pizzi, Carol Kaye, and Mitch Holder
Thumbs Up (1998)
From Kaye's opening bass line on "Green Dolphin Street" to Pizzi's stirring sax melodies on "Freefall," this live set, recorded in L.A., dips, walks, and shimmies with a lounge-jazz feel from another era.

Matthew Sweet
In Reverse [1999]
As Kaye's first true "rock" session since the '60s, this album says everything about why she has been in demand for so long. Her steady, thumping bass infuses songs like "Faith In You" with an irresistible, head-nodding urgency.

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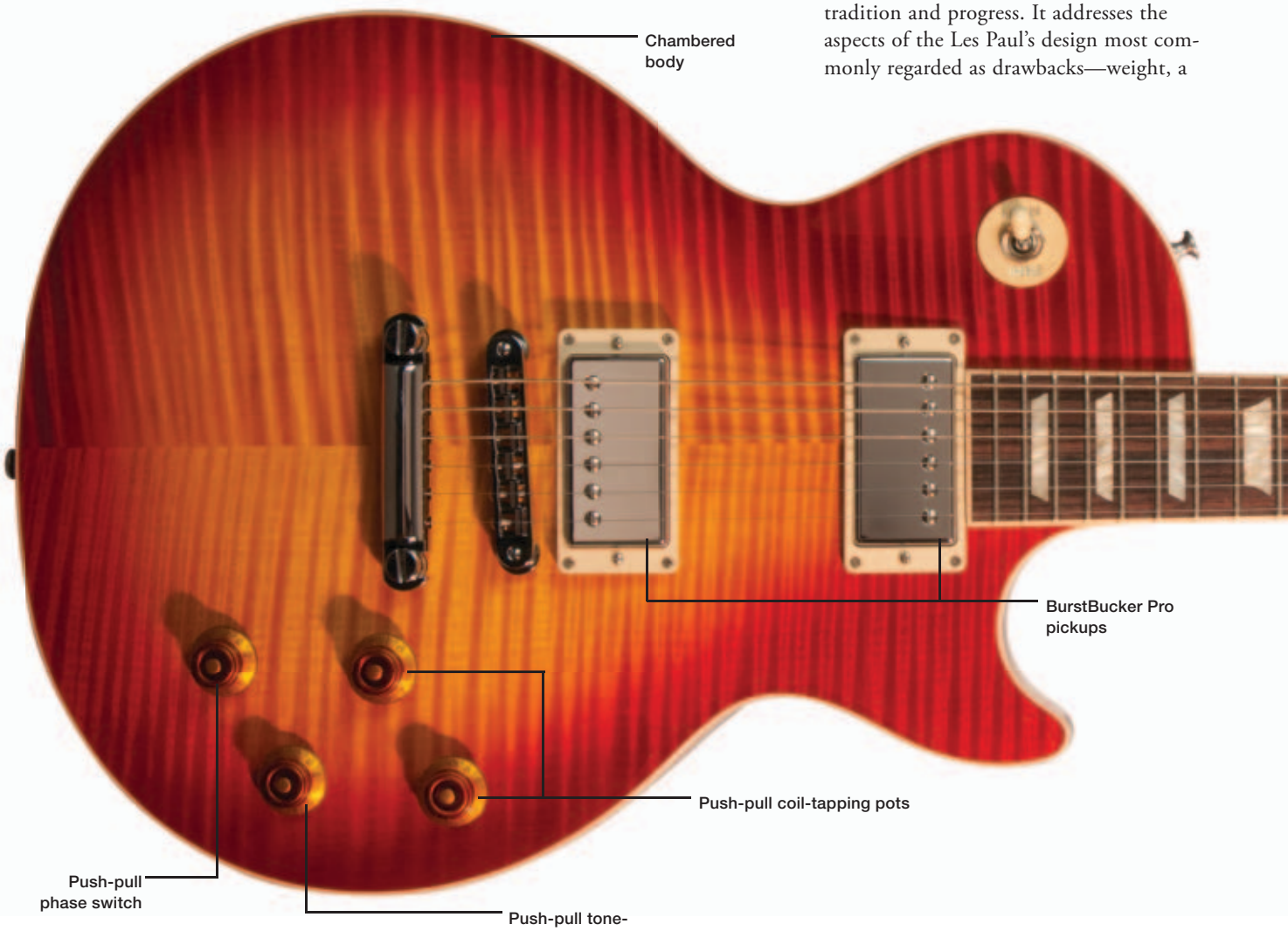
GIBSON LES PAUL STANDARD

BY JAMES ROTONDI

Ever since Gibson discontinued the original Les Paul Standard back in 1960—after just three years of production—the company has had a fluid, perhaps sometimes confused, but ultimately profitable and image-enriching relationship with its flagship guitar. Thanks in large part to the influence of Clapton and Page, demand for old Standards exploded in the mid '60s, and Gibson soon resurrected the Les Paul. Unfortunately, the Paul they brought back in '68 wasn't really what players were hoping for or expecting, and it would be more than two decades before the company built a run of Standards that truly conformed to the specs of coveted '57–'60 models. But even after Gibson finally delivered the Les Paul purists had been craving, they kept on tinkering with the formula.

As far back late '50s, Gibson walked the line between staying at the leading edge of electric-guitar design and pleasing traditionalists—way back in 1958, the Flying V was the company's first attempt at a space-age guitar. It's been a tough balancing act ever since. For every authentic '50s-style reissue, it seems there's a Gibson designed to be more versatile, lighter, or more aesthetically and creatively up to date.

As the new Les Paul Standard reviewed here demonstrates, Gibson's creative impulses can still extend to even the company's most iconic models. But with this guitar—the model's first significant redesign since 2008—Gibson may have struck a near-perfect balance between tradition and progress. It addresses the aspects of the Les Paul's design most commonly regarded as drawbacks—weight, a



lack of thinner, single-coil-like tones, and the neck shape and radius, which traditionally remained constant from the nut on through to the higher registers. Wisely though, Gibson made sure that, outwardly at least, it remains unmistakably a Les Paul Standard.

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to hear audio clips of the guitar at premierguitar.com/sep2012

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You won't struggle to feel the difference in this newest Standard, either. Les Paul players have always struggled to reconcile the guitar's awesome sonics with its sheer heft: Depending on the density of the mahogany, an older Les Paul can easily weigh up to 12 pounds—or more. After trying several methods of chambering the Les Paul body to reduce weight without sacrificing tone, Gibson has turned to a system it calls Modern Web Weight Relief for the 2012 Standard.

Essentially, the core of the mahogany body is left as intact as possible, while small cavities are added around the outer bouts. The company says this reduces overall weight by an average of about 25 percent. If you play night after night, or long sets, that's a noticeable difference. Some may argue there's an inevitable cost in tone, but it's hard to argue with the roar and sustain I heard in our test version.

Perhaps the 2012 model's most radical feature, though, is the ability to tame that famous double-coil thickness with a very clever set of options that are concealed in an otherwise conventional-looking set of volume and tone pots. The bridge- and neck-pickup volume pots are push-pull pots, and pulling up either one activates what Gibson calls a frequency-tuned coil-tap—a single-coil mode that sounds remarkably like the clear, hot output you'd expect from a P-90.

What's extra cool is that the coil-tap does not noticeably reduce output, but instead attenuates selected frequencies. For players who find the Les Paul thickness to be too much of a good thing, this is a great option for opening up a wider range of tones, while still having the powerhouse stuff at your disposal.

The Standard's tone knobs have secret powers, too. The neck pickup's tone control doubles as an out-of-phase switch. When both pickups are selected, this creates a pleasantly diffuse and grainier sound that works equally well in either humbucking or single-coil mode. In single-coil mode, this switch also determines whether the inner or outer coil of the neck pickup is in use. Meanwhile, the bridge pickup's tone knob doubles as a bypass switch, sending that pickup's signal around the tone section and directly to the output jack, adding brightness and volume in both humbucking *and* coil-tap mode.

Sticking Their Necks Out

The 2012 Standard shares several features with the 2008 model, including locking Grover tuners with kidney-shaped buttons. But it adds some new hardware, too, like a TonePros locking tailpiece and locking Tune-o-matic-style bridge. The 2012 model also shares the 2008's asymmetrical neck shape, which is subtly fatter and rounder behind the low strings, and slightly thinner on the treble side. Personally, I didn't find the difference too pronounced, but I did notice that the neck feels exceptionally comfortable—and that it was neither too skinny, nor overly round or baseball bat-like.

The 1960 Standard neck shape—as always, the neck is mahogany—is clearly

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the jumping-off point here, and the asymmetry is better suited for fast lead work. But the new Standard also features a compound neck radius, and whereas the Les Paul Standard Traditional sports a 12" radius from nut to the 22nd fret, the new Standard boasts a 10" radius at the nut that flattens to 16" at the other end of the fretboard. Again, the difference is less noticeable than you might expect, but the result is lower, cleaner action that's ideal for articulating complex figures.

Standard Bearer

Playing the new Standard with a 6-piece band covering a wide selection of classic R&B, blues, heavy rock, '80s rock, and indie material, I found the expanded range of tonal options—especially the most decidedly un-Les Paul like ones—to be very handy when I wanted to create thinner chiming tones, funky rhythms, or a less bossy sound. But what's great is that it's no problem getting those bold, fat tones, too. When used in the most traditional manner, the volume and tone pots can coax a wealth of tones, work great for nuanced note swells, and can dial back overdriven tones into nice, clean-but-edgy territory, as well.

During rehearsal, I had a little difficulty keeping the guitar in tune, as well as some concerns about intonation of chords up the neck. At times, I also detected some creaky, string-slipping noise coming from the nut when bending strings above the 10th fret. These may be easily corrected factory-setup issues, and they did not seriously detract from my pleasure in playing the guitar—even if they did require spending a little more time tuning in between tunes.

RATINGS

Gibson 2012 Les Paul Standard, $2,499 street, gibson.com

Pros: Sumptuous finish. Compound neck radius yields clean, easy action. Coil-tap, phase, and boost/bypass switching provides a plethora of tones. Warm, aggressive sounds clean up nicely.

Cons: Some tuning instability. Burstbucker pickups can sound a little brash at some settings.

Tones	4.5
Playability	4.5
Build	4
Value	3.5

The Verdict

The 2012 Les Paul Standard is a superb all-around axe that combines archetypal styling with some genuinely smart performance enhancements that not only make it one of the most versatile Les Paul's ever—but about as varied an electric guitar as you'll find. If you're looking for a more literal recreation of a 1958–1960 Les Paul Standard, the Les Paul Standard Traditional is still available. But if you're a regularly gigging player looking for both the mojo and majesty of a Les Paul Standard *and* the versatility to get you through stylistically diverse gigs and sessions, the 2012 Les Paul Standard has the means—and then some—to get the job done.

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GIBSON
LES PAUL STUDIO

BY JORDAN WAGNER

Gibson has played around with the Les Paul formula for half a century now, with both great and not-so-stellar results at times. So it goes when you're tinkering with one of the most iconic guitars of all time. One of the smartest and most successful twists on Gibson's flagship axe was the Les Paul Studio—an more-affordable, less-fancy, but arguably just-as-elegant Les Paul variation that's remained one of the company's best-selling guitars of all time.

Les-son in Tone

A lot of familiar Les Paul Studio features remain in the newest model. The time-tested combo of a mahogany body with a carved maple top is still used for the body construction, and it shares the new Modern Weight Relief chambering pattern with this year's Les Paul Standard. But since it's a Studio model, there's no binding to be found anywhere on the body or fretboard. The tuners are Klusons, which lends a vintage air, and you'll find 490R and 498T

CLICKHere...
to hear audio clips of the guitar at premierguitar.com/sep2012

humbuckers in the neck and bridge positions, respectively.

On this most recent iteration, however, the set quarter-sawn mahogany neck is capped with a 22-fret Granadillo fingerboard, inlayed with pearloid trapezoid markers, and carved in a slim '60s profile. American guitar makers use Granadillo a lot more often these days, but it's been a staple of by South American luthiery for centuries. It's a denser material than rosewood, but resonates beautifully and has a bright tonality—which is why it's a popular wood for instruments such as marimbas. Over time, it tends to darken to the shade of Honduran Rosewood.

More significantly from a tone-shaping perspective, Gibson eschewed standard volume pots on the new Studio for push-pull coil-tapping units that enable access to snappier tones. And while they were at it, Gibson also expanded the finish options by adding a few new vibrant editions, such as inverness green, radiant red and the pelham blue finish of our review guitar.

Legendary Tone with a Twist

Pumped through a Mesa/Boogie Multiwatt Dual Rectifier and an Emperor 4x12, the Studio delivers muscular clean tones for chording and gingerly-picked melodies. The guitar is also blessed with brawn aplenty, and the 490R and 498T pickups both display a penchant for strong attack and a rich midrange, which makes them great for traditional, rock-oriented Les Paul applications. The real difference in the guitar is the sounds you get from the pickups' coil-tapped modes, which are impressively full and vibrant. The 498T bridge pickup—which its relatively hot at 13k-15k output range—is especially well suited for coil tapping mode. It has fantastic snap in the highs, but also has an unexpectedly powerful midrange—perfect for players that love Les Pauls with P-90s—and a tighter low end that helps overcome the muddier tendencies of the Les Paul breed.

Overdrive tones were thick and luscious through the Mesa's overdrive channel and the guitar remained responsive and dynamic when I dug into the strings—making it easy to coax thick overtones and harmonics. In this kind of setting there's plenty of classic Les Paul tone on tap, but with slightly more modern edges to the highs—especially with the 498T bridge pickup switched in. In general, the bridge position performed best at lower gain settings, where it reveals a complex midrange and thick, rope-like attack that's great for biting rhythmic single notes.

The 498T bridge pickup—which its relatively hot at 13k-15k output range is especially well suited for coil tapping mode. It has fantastic snap in the highs, but also has an unexpectedly powerful midrange.

The Verdict

The new Les Paul Studio continues to be a fantastic choice for budget-minded players looking to get a piece of the Gibson USA pie. It delivers the throaty tones that you would expect from a good Les Paul, along with some impressive coil-tapped sounds that really expand the range and versatility of a guitar that's already an impressive value, not to mention a sweet looking take on a classic. Les Paul purists may take exception, but their protests won't change the fact that this is one superb all-around rock machine.

RATINGS

Gibson USA Les Paul Studio, $1,399 street, gibson.com

Pros: Comfortable and classic-feeling. New tones abound with coil-tapping.

Cons: No option for a '50s profile neck.

Tones	4.5
Playability	4.5
Build	4.5
Value	4.5

DEIMEL FIRESTAR

PREMIER GEAR

BY CHARLES SAUFLEY

A lot of stateside guitar spotters got their first peek at Frank Deimel's craftsmanship via Sonic Youth's 2004 DVD *Corporate Ghost*. Like much of the visual art created and used by Sonic Youth, the DVD cover is a mysterious twist of reality—it features an x-ray of what *looks* like one of the band's many mangled Jazzmasters. Closer inspection, though, revealed something else—12 strings, an unusual pickup array, and a name on the headstock showing that the Youth were looking beyond depleted vintage reserves for their fix of Fender offset-style axes.

Eight years later, Frank Deimel certainly isn't a household name among American guitarists, but thanks to high-profile custom work—including Ranaldo's 12-string, a fancy 6-string built for the late-great Nikki Sudden (sort of a cross between a Zemaitis and a Ted Newman Jones), and a Mustang-style guitar for Simon Taylor-Davis of the Klaxons—the Berlin-based luthier is becoming an ever-looming presence on the radar. This is especially true amongst fans of Fender's offset creations and other off-beat instruments. Guitars like the versatile and beautiful Firestar reviewed here may yet find Deimel becoming a fixture on the stateside custom and boutique landscape.

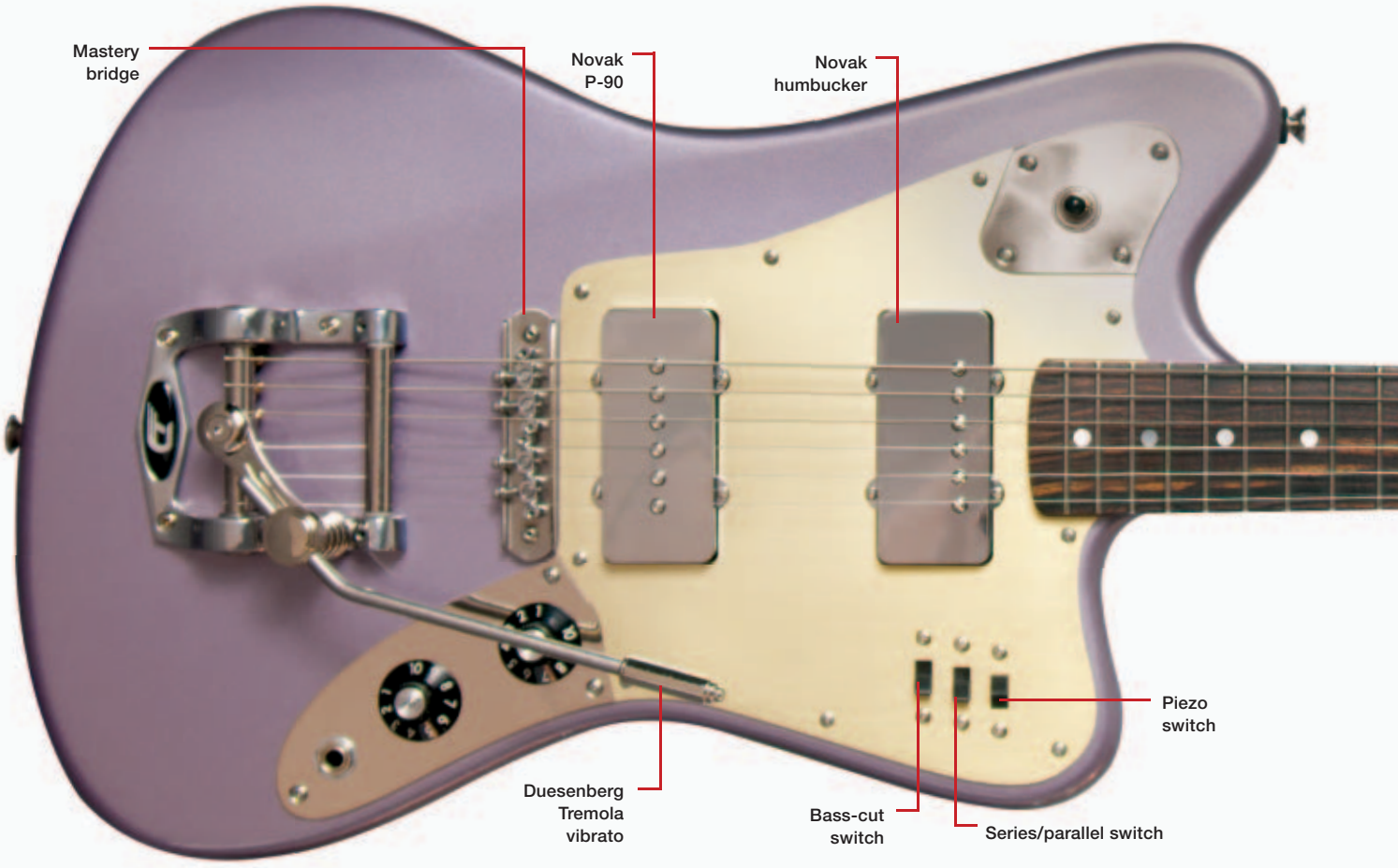
CLICKHere...
to hear audio clips of the guitar at premierguitar.com/sep2012

Space Programmed

Cadillac-gorgeous in its thin nitrocellulose, saturn lavender metallic finish and gold anodized pickguard, the Firestar looks and feels like it was built from blueprints sent aloft in a Gemini capsule and lost to orbital exile since 1966. The prevailing design inspirations are Jaguar, Jazzmaster, and non-reverse Firebird, but there's also more than a touch of '60s Japanese styling—and, in the reverse Fender-style headstock, a nod to Jimi's upside down Stratocaster and '80s "super strat"-type motifs. Together, the elements add up to a very balanced and distinctive pastiche of psychedelic-era styling idioms—an inspired and not-at-all easy feat in these overly retro-minded times.

The Firestar's balance is more than visual, though. It feels great hanging over your shoulder, with a compact American red alder body that feels more like a Mustang in terms of dimensions and weight than a Jazzmaster or Firebird, all without looking *too* diminutive or feeling insubstantial. The body contours, meanwhile, both enhance comfort and soften the blockier aspects of the guitar's silhouette.

With its chunky-but-fast profile, the Firestar's Canadian rock maple neck evokes the feel of a '70s-vintage Telecaster Custom and, to some extent, some of the more substantial necks on non-reverse Firebirds of the mid '60s. If you're used to slimmer '60s Fender C shapes, this neck will undoubtedly seem like a handful your first few times



around. Ultimately, though, it's a neck that makes chording a breeze, and when mated with the medium jumbo frets, can compel you to get a little more athletic and aggressive with bends. The Makassar ebony fretboard imparts a sense of luxury and custom-shop care. So do little touches like the bone nut, the '60s-style TonePros Kluson tuners (*still* the easiest string change in the business), and the high-quality capacitors and cotton-wrapped wire concealed behind the pickguard.

While you can order just about any pickup configuration for the Firestar, our version came with a Novak P-90 in the bridge and a Novak humbucker in the neck position—both of which, in a general sense, give you a cool hybrid of Telecaster Custom and Firebird tone palettes. But you can significantly expand the range of tones with Deimel's inspired take on a Jaguar-like switching system, which gives you the option to run the pickups in series or parallel, activate a bass-cut filter for a more biting and thin surf tone, or engage a piezo—which, depending on your amp and pedal settings, puts some very unique and harmonic-rich tone flavors at your fingertips.

Aft of the pickups, the strings cross a Mastery bridge—an ingenious and beautifully designed piece of hardware that's increasingly embraced by frustrated Jaguar and Jazzmaster players because it typically improves intonation, sustain, and stability. Deimel also opted for the very cool Duesenberg Tremola vibrato system—a killer-looking mutant cross of Bigsby and Kauffman elements, with clever design touches like an adjustable vibrato arm that can be extended to near-Jag/Jazz lengths and/or pivoted on the opposite axis so you can position the handle closer or further away from your picking hand.

Boss Starship

While the Firestar clearly plays off of offset Fender styling cues, our particular model, with its Novak P-90 and humbucker, tended to sound more Kalamazoo bred than Fullerton born. Heard via the relatively blank slate of a Fender Twin Reverb, it exhibits a tendency for rowdy and round to barking voices, depending on the pickup selection. The Novak P-90 walks a cool line between husky and crystalline, depending on how you set the guitar's volume, with excellent string-to-string definition and the ability to send a fuzz or overdrive into a harmonically charged state that's great for stinging leads or crunchy-but-detailed chords. The bass-cut switch tames the aggressive tendencies of the P-90 significantly, but it renders the tone quite thin in a manner that perhaps only surf-music fiends and a certain brand of garage-rock lovers will love in live settings. It's a great flavor to have in a studio setting, but probably one you'll be more inclined to leave alone onstage unless you're trying to tame the woof of a 15" speaker.

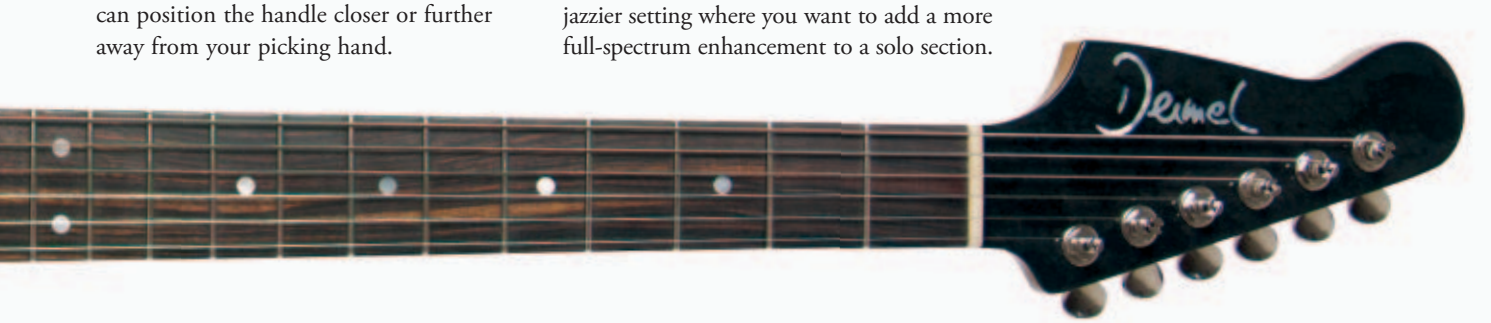
Novak's humbucker adds a woolly and round—but still very detailed—tone to the mix. The combination of a 25 1/2" scale and a good humbucker is always formidable—especially for first-position chords or detuned open tunings built around doubles and drones—and on the Firestar, tunings like DADGAD and open G and D become positively massive, especially when you lend a little extra treble to your amplifier. Running the pickups in series enhances the effect, adding dimension and girth. That's definitely a feature that can come in handy onstage when you need a bump in output to get over a loud band, or even in a mellow, jazzier setting where you want to add a more full-spectrum enhancement to a solo section.

Predictably, the Deusenberg Tremola extends the expressive potential of the Firestar considerably. In terms of feel, it's more Bigsby then anything else—no surprise, given the big spring that gives it its elasticity. It feels spongier than most Bigsbys (newer ones, anyway), but while that's ideal for light coloration and feathering of chords, it's a little less ideal for fast vibrato. That said, the extendable arm is great for tailoring the system for a springier Jazzmaster feel or a more immediate, Stratocaster-type leverage. Given the inherent Bigsby-ness of the unit, you can craft some very unique feeling hybrids of all three systems.

The Verdict

One of the most beautiful things about the Deimel Firestar is that it represents the convergence of Frank Deimel's considerable experience as a top-flight builder and his very open mind about electric guitar design—and music in general. It's an amazing rock 'n' roll guitar, but it was built with the limitless possibilities of noise rock in mind. The end result is an artistically executed instrument and an impressive combination of control, stability, and boundlessness that will reward rock dogmatists and boundary-smashing experimentalists in equal measure.

Inevitably, it inherits some of the minor problems that, at times, make its inspirational forebears less-than-perfect guitars. The Bisgby-like Tremola is less than completely stable in terms of tuning, and the switch array can seem like a handful if you tend to do little more than switch back and forth between the bridge and neck pickup on your Telecaster. The very Fender-y feel of the guitar can also sometimes leave you longing for the more defined and concise sound of Fender-style single-coils (which *are* an available option). But make no mistake, this is a guitar that can see you through myriad musical situations—especially if you're looking to cover tone and techniques that you can't get from a more bare-bones instrument.



RATINGS

Deimel GuitarWorks Firestar, $ 2,435 street, deimelguitarworks.de

Pros: Exceptional craftsmanship. Thoughtful design. Tons of tones.

Cons: Begs for Fender-style single-coil tones. Somewhat pricey.

Tones	4½
Playability	5
Build	4½
Value	4

WALDEN
G700CE

BY GAYLA DRAKE

Walden has been one of the real stars of the affordable acoustic market for quite some time, consistently producing well-built, high-quality, great-sounding guitars for less than a grand—and often much less. Like many guitar makers that offer great stuff that's accessibly priced, Walden builds their axes overseas. But Walden is not a sloppy outsourcing operation. They emphasize a hands-on ethic and like to know where their materials are coming from—getting woods from PEFC certified sources and using a small staff of seven trained luthiers. The payoff has traditionally been guitars that rival, and often better, a lot of guitars in the same price class. The G700ce Grand Auditorium, from the company's Natura line, is no different. It manages to be comfortable, playable, attractive, and stage-ready with B-Band electronics, all for about $650. It's a great deal for gigging players who need to get the most out of their budget.

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to hear audio clips of the guitar at premierguitar.com/sep2012

More Than the Sum of its Parts

Walden guitars always seem to look good, and elegant understatement seems to be the rule with the Walden design gurus. The G700ce doesn't deviate from that formula. It's beautifully proportioned, with a Grand Auditorium body that's roughly the size of a 000 but slightly more voluptuous and deeper. The top is solid Sitka spruce, and the back is solid Indian rosewood. Only the sides, which arguably have the least impact on tone, are laminate, while the neck is solid mahogany, and fretboard and bridge are Indian rosewood. It's not an entirely austere guitar—the body is bound with white plastic, and an abalone rosette and reddish faux-tortoise pickguard add a tasteful measure of flash and adornment.

The fretboard width is 1 11/16" at the Fossalite nut (which Walden says achieves the warmth and depth of vintage bone while accentuating highs and mids). The string spacing makes it a great guitar for strummers and flatpickers, if a little less ideal for a fingerstyle guitar, though anyone accustomed to the classic Martin 000—a great fingerstyle guitar with narrower string spacing—will be in familiar territory. The reliable B-Band pickup and onboard EQ/preamp/tuner are as easy to use and navigate as can be, with volume, low, mid, and treble controls, a tuner button, and a phase switch.

The G700ce is wonderfully balanced with plenty of warmth and low-end support for a high-end that tends to really shine with great definition.

The Whole Nine

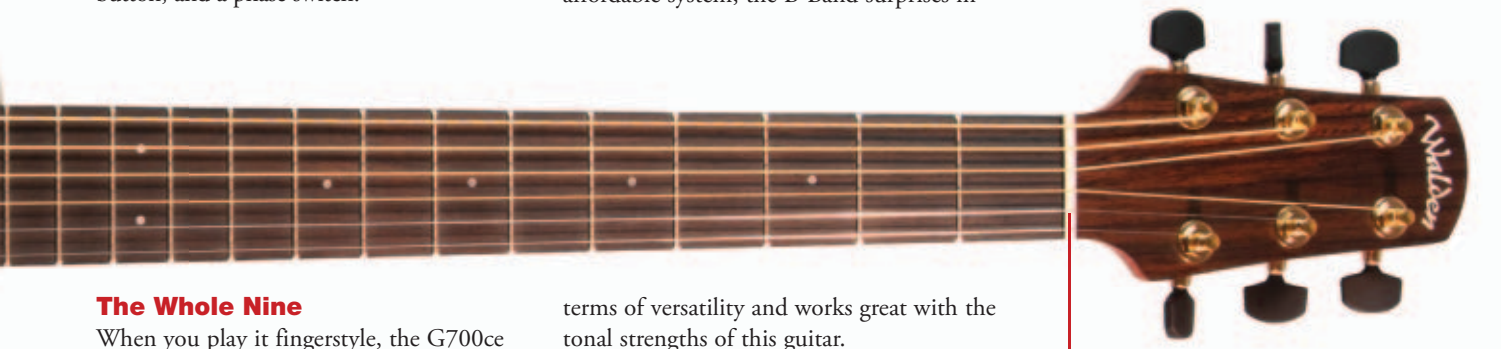
When you play it fingerstyle, the G700ce is wonderfully balanced with plenty of warmth and low-end support for a high-end that tends to really shine with great definition. The mids can be slightly nasal, but not obnoxiously so. It imparts a nice bluesy honk that may very well mellow as the guitar ages and loosens up a touch. When you're strumming, the Walden is very clear, balanced, and clean sounding—those honky mids come in handy here. This more full-spectrum sound means you can coax a complete tone picture from the guitar without strumming too heavily. When you capo up past the 2nd fret, you do seem to lose just a touch of sparkle, but aside from a slight and predictable loss of bass thump, the guitar remains quite balanced.

The G700ce's string spacing is great for electric players switching back and forth during a night. But the B-Band system also makes the Walden a very intuitive acoustic axe for the crossover player. It's easy to dial in a great tone in seconds. Going directly into a PA system, I dialed back the mids just a hair, boosted the bass by about half as much, and left the treble at noon. And in a small coffeehouse-style room with a wooden floor and a high ceiling, the sound was both sweet and powerful enough to compete with a bass player. Plugged in, the loss of sparkle when you capo is less obvious, and with the tone controls right under your nose, it's possible to quickly add some of those lost frequencies back in. For an affordable system, the B-Band surprises in terms of versatility and works great with the tonal strengths of this guitar.

The Verdict

The G700ce is a very well executed and well-rounded guitar. The tone is warm and lively, and projection is excellent—thanks in no small part to the deeper Grand Auditorium body. The neck is comfortable, fast and easy to play, and actually well suited for fingerstyle in spite of the more flatpicking-oriented string spacing. With it's broad-spectrum and forgiving personality, the onboard B-Band electronics are a great surprise—both in terms of ease of use and how well they suit the Walden's range of tones—and dialing in a good amplified sound in a variety of performance situations is entirely uncomplicated.

At $650, the C700ce represents a great value too—standing out in a price category where it can be hard to weed out the contenders from the pretenders. If gigging is a priority and money is tight, you can't really go wrong with this Walden. It may very well remain a go-to guitar long after you've got the cash to go up market.



RATINGS

Walden Guitars G700CE, $650 street, waldenguitars.com

Pros: Well-made, playable, affordable. A complete gigging guitar.

Cons: Midrange might be a little nasal for some.

Tones	4½
Playability	4½
Build	4½
Value	4½

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PREMIER GEAR

KEMPER PROFILING AMPLIFIER

BY JORDAN WAGNER

When was the last time that someone tried to sell you an all-in-one amplifier? Was it at the start of the modeling craze in the early 2000s, or was it at the height of the solid-state amp boom when everybody was saying tubes were on their way out? Few would blame you if you tuned out the hype entirely at this point.

Kemper Amplification, however, has taken a very different approach to the challenge of delivering a multitude of amp tones in a single unit. Instead of designing a modeler that is loaded with preprogrammed emulations of the classics, the Kemper Profiling Amplifier lets you create your own models from real amps—the ones that best suit your own playing style.

CLICKHere...
to hear audio clips of the amp at premierguitar.com/sep2012

Profilin' and Stylin'

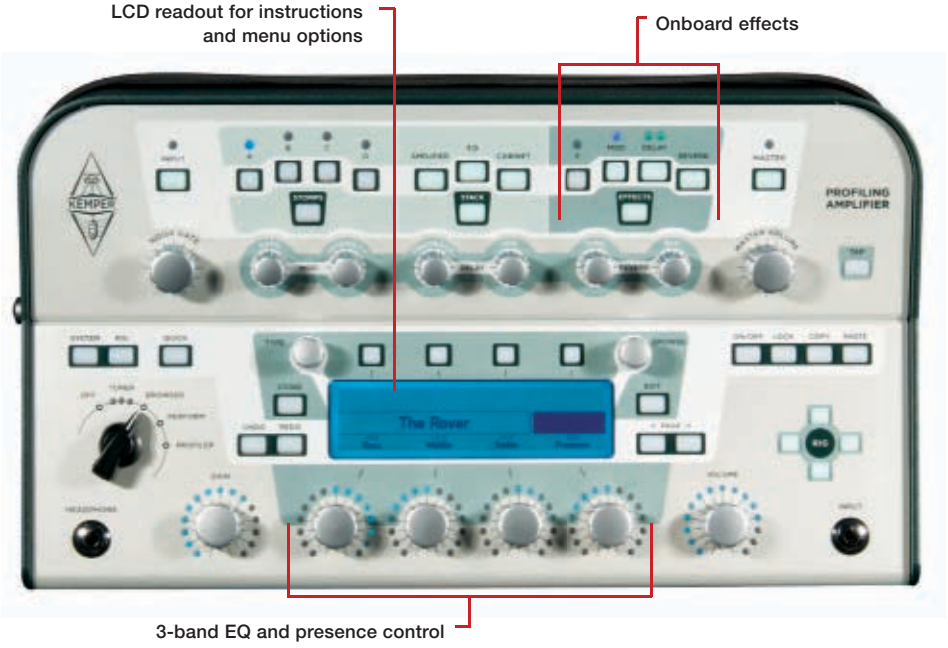
While the Profiling Amplifier looks like it would be at home on a very advanced alien spacecraft, the profiling process itself is surprisingly simple. To set up a profile, you warm up a tube amp (solid-state amps work, too), plug a guitar into the Kemper's front input jack, and run an XLR cable from the Kemper's rear-mounted XLR jack to a microphone set up to mic the source amp's speaker. Then, you complete a loop by running a patch cable from the amplifier's input jack to the Kemper's 1/4" direct output/send jack. Through this loop, the Kemper captures the tone DNA of the tube amp. It's sci-fi stuff, but it works.

The process is also surprisingly fast. You set the 5-way rotary chicken-head knob on the left side to the profiler setting, and the LCD screen gives you easy-to-follow instructions. You play through the amp you're profiling and, using a pair of headphones, listen to how it sounds through the mic. Once you have an accurate sound picture of the amp, you start the profiling process. The Kemper sends out three pieces of garbled noise to the amp's input that represent high-, middle- and low-frequency ranges. It sounds a little like a fax modem running through a Big Muff, but don't worry—these signals are designed to evaluate how the amp's circuitry and cabinet react to the input. The mic picks up the signals as they come out the other end of the amp circuits and cabinet, and then sends them back into the Kemper for processing—the end result, as strange as it seems, is a super-accurate profile of the amp's unique dynamics and response to different frequencies and signals.

Once you create a basic profile of your amp, you can fine-tune it in the amplifier portion of the stack section (top middle of control panel). Here you can alter power amp sag, dial in vintage or modern response qualities, adjust the level of compression, and even how much pick attack comes through. The cabinet's voicing and size can be changed, too.

You can also apply several fully adjustable effects, including distortion, phasing, EQ, and delay from the Kemper's model banks, and place them in any order you desire. When you want to save the rig you've assembled, you simply press the store button, name the preset, and save it to the Kemper's storage banks. When you want to call the profile back up, you flip the rotary switch to browse and scroll through the patches until you find what you're looking for. Conveniently, Kemper ships the device with a ton of fully editable factory patches.

Since the Kemper is essentially a preamp, the device has a couple of options for amplification. For live use, you can run out of two XLR or two 1/4" outs to a PA mixer, or to a separate power amp running into a speaker cabinet (the amp's cabinet emulation can be disabled for these situations). A dedicated monitor output and S/PDIF input and output jacks round out the audio connections, and a set of MIDI and 1/4" jacks for footswitching offer a wide range of control options. The back panel also sports an RJ-45 jack for network interfacing, along with two USB jacks for updating the firmware and uploading custom rigs from other Kemper Profiling Amp users.



Sadly, one of the amp's coolest features, the perform function (which essentially allows you to compile up to five saved rigs in one patch, and switch between them either via MIDI or a footswitch when playing live) was not a working feature in the software at the time of this review. Kemper promises that the feature will be available as a firmware update in the future.

Hearing Is Believing

The Kemper's ability to quickly and painlessly capture the essence and quality of every amp that I threw at it never failed to amaze. If the unit has a flaw, it's that a given amp profile relies on the quality of the signal that you capture with the microphone—which means you need some audio engineering instincts and a decent microphone. If you have nice condenser mics, you'll need phantom power that the Kemper's XLR jack doesn't offer, but in such a case you likely have nice preamps providing power anyway.

Remarkably, such limitations have little effect on the quality of the Kemper's ability to capture an amp's essence. I rounded up a pretty diverse collection of amps for the Kemper to clone—an Xits Sadie combo, Mesa/Boogie Dual Rectifier, Verellen Meatsmoke, Fender '65 Twin Reverb reissue, and a Vox AC30 combo.

With the Dual Rectifier running into an Emperor 4x12 loaded with Weber C1265 speakers, and a Les Paul Custom in hand, I used a Sennheiser e609 microphone to find the cab's sweet spot and initiated the profiling process.

When I was finished, I was floored at how precisely the Kemper captured the Mesa's complex tonality. The profile loosened and tightened in response to pick attack in the same manner as the actual amp, and cleaned up in a frighteningly similar fashion when I rolled down the guitar's volume control. Even the Kemper's onboard, 3-band EQ, presence, and gain controls affected the model in much the same way as the real Boogie would—especially with respect to how the gain control tends to tighten and soften the amp's response.

Each of the remaining amps generated similarly accurate patches. The AC30 as captured by the Kemper delivered a big, robust midrange that bloomed as I opened up the gain, and displayed a knack for refined high end after I switched to a 2010 Fender American Strat.

The sparkle and clarity of the Twin Reverb was captured flawlessly, and I was ecstatic that I was able to add a little something to the Twin formula that I've wanted for a while—a little power section sag at crisper settings. I felt as if I was effectively building my own custom amplifier at this point—pulling back the amp's pick attack level and adding in a little more vintage response to warm things up a bit. Since I profiled the amp dry, I threw on a little reverb and a slight delay, which made the tone even more expansive. And the Kemper's stompbox models also offered some very smooth-sounding reproductions of famous boost pedals—like the Ibanez TS-9 Tube Screamer—that juiced the front end nicely.

One amp that the Kemper had a tougher time nailing was the Xits Sadie, which has a unique clarity to it that I've rarely heard in an amp before.—it's very, very pristine and honest. The Kemper did an admirable job of getting a good picture of the amp's tone and response qualities, but fell a bit short on really attaining its glassiest highs.

Kemper didn't really design the Profiling Amp to handle bass amps, but it's definitely capable of doing this, and according to the company, bass profiling is completely safe. Even though the Kemper didn't capture the huge subs that the Verellen Meatsmoke is capable of generating, it did get the tonality and response down eerily well, with plenty of low end for most types of bass work.

The Verdict

The Kemper Profiling Amp is one of those pieces of gear that you have to check out, regardless of how you feel about modeling, digital circuitry, or anything else that dares challenge the supremacy of the classics. True, you need to profile a great amp to get great tone. And there is a bit too much room for human variables in the tone-capturing process to guarantee the results.

On the other hand, this isn't simply another modeler that makes promises that it really can't keep. It's capable of truly awe-inspiring results and it's actually quite affordable for what it does—which is much, much more than what we can cover in this review. Perhaps the only real drawback will be the response you get from friends when you come over to profile their own classics—making you a new guitar-playing version of the guy that comes by to drink all your beer and rip all your CDs. But if you need tone by any means necessary, the Kemper Profiling Amplifier holds the key.

RATINGS

PREMIER GEAR

Kemper Profiling Amplifier, $1,850 street, kemper-amps.com

Pros: Astonishing ability to create near dead-on reproductions of tube amps. Excellent array of effects. Lightweight and affordable.

Cons: No phantom power. Demands a good ear for proper mic placement.

Tones	5
Ease of Use	4.5
Build	4.5
Value	4.5

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FENDER SELECT STRATOCASTER

BY JAMES EDEL

Earlier this year, Fender released their Select Series—three Telecasters, two Stratocasters, a Precision Bass, and a Jazz bass—intended to bridge the gap between the American Deluxe Series and the company's wide variety of Custom Shop instruments.

It's not the first time Fender has tried to take their most classic instruments upmarket. And for lots of players that like a Stratocaster to be a Stratocaster, such efforts confound. But in the case of the Select Stratocaster reviewed here, there's plenty to suggest that this latest attempt is much more than a branding effort.

Knocked Out

Lying there in the lovely tweed case, the Select Stratocaster is breathtaking. The dark cherry burst flame maple top, which caps, and alder body induces covetous thoughts even when you're not considering the high quality of the materials. The neck and fretboard are flame maple as well, and it's hard not to be struck by the beauty of the wood on this instrument. The medium jumbo frets and C-shaped neck both feel familiar and fall under your fretting hand in a way that will seem like an old friend to anyone who has played a '60s-vintage specimen or a Stratocaster inspired by one. I was less accustomed to the neck's compound (9.5"-14") radius, but once acquainted, I found it fast, super smooth, and much more comfortable to play in the higher registers. It's a nice, and functional, evolution of an already great neck.

The Select Stratocaster has deluxe locking tuners, which some players will love and purists may feel indifferent about. The contoured neck heel is a smart and potentially invaluable feature—one that, as a long time Stratocaster owner, I wonder how I lived without. Combined with the fretboard's widened sweet-spot, thanks to the aforementioned compound radius, the neck heel,

bi-flex truss rod, and rolled steel saddles can accommodate infinite action adjustments to suit any playing style.

Smooth Talker

The pickups on the Select Stratocaster are superb—clear and more focused than any Stratocaster I've encountered in recent memory. The neck position is warm but with exceptional definition, while the bridge pickup has all the clarity and brightness you'd want from a Stratocaster's most biting voice with a more civilized air. The second and fourth positions are more finessed and less honky than the tones I've encountered on other Stratocasters, but at high volume, they can positively scream. It's easy to delve into Trower-esqe insanity, but this guitar can also manage a mellower blooming tone when you work with less aggressive tone and volume settings on the guitar. The no-load pot has a subtler effect than I would ordinarily expect, but I find the raw bite of the unimpeded bridge pickup is still a handy sonic tool for cutting through a cluttered band mix. As a result I found a ton of the tones I wanted with the bridge tone set to 10 and neck tone at 5. The well-defined picking dynamics of these single coils shine, while the extended sustain bolsters this Select Strat's expressiveness. They make a humbucker-single-single configuration as well, though I haven't put my hands on that guitar.

The Verdict

There's no denying that the merits of the Select Stratocaster are much more than superficial. The pickups lend a sense of sonic refinement and audible richness without straying from the tone formula that makes the Stratocaster an enduring work of genius, and the tone controls are not only responsive and fun to work with, but create a genuinely expanded tone palate. The neck too, enhances what's already a near perfect design in ways that can genuinely expand your playing vocabulary.

If you have never been fond of Stratocasters in the past 58 years, this one won't do much to change your mind. But if, like me, you're an unrepentant fan of Leo's masterpiece, the Select Stratocaster is a true evolution of a great guitar. The price tag puts it out of reach for many players' means, but given how many improvements in this guitar are more than skin deep, the Select Stratocaster is likely to repay the investment—not only as an exquisite Stratocaster but as a potential front-line, go-to guitar that will reward you as a player for years to come.

RATINGS

Fender Select Stratocaster, $2,050 street, fender.com

Pros: Excellent quality. Flexible electronics. Rich, smooth, but quintessentially Strat-like pickups. Great neck. Gorgeous materials.

Cons: Hefty price tag.

Tones	4.5
Playability	4.5
Build	4.5
Value	4

ROLAND G-5 VG FENDER STRATOCASTER

BY JORDAN WAGNER

CLICKHere...
to hear audio clips of the guitar at premierguitar.com/sep2012

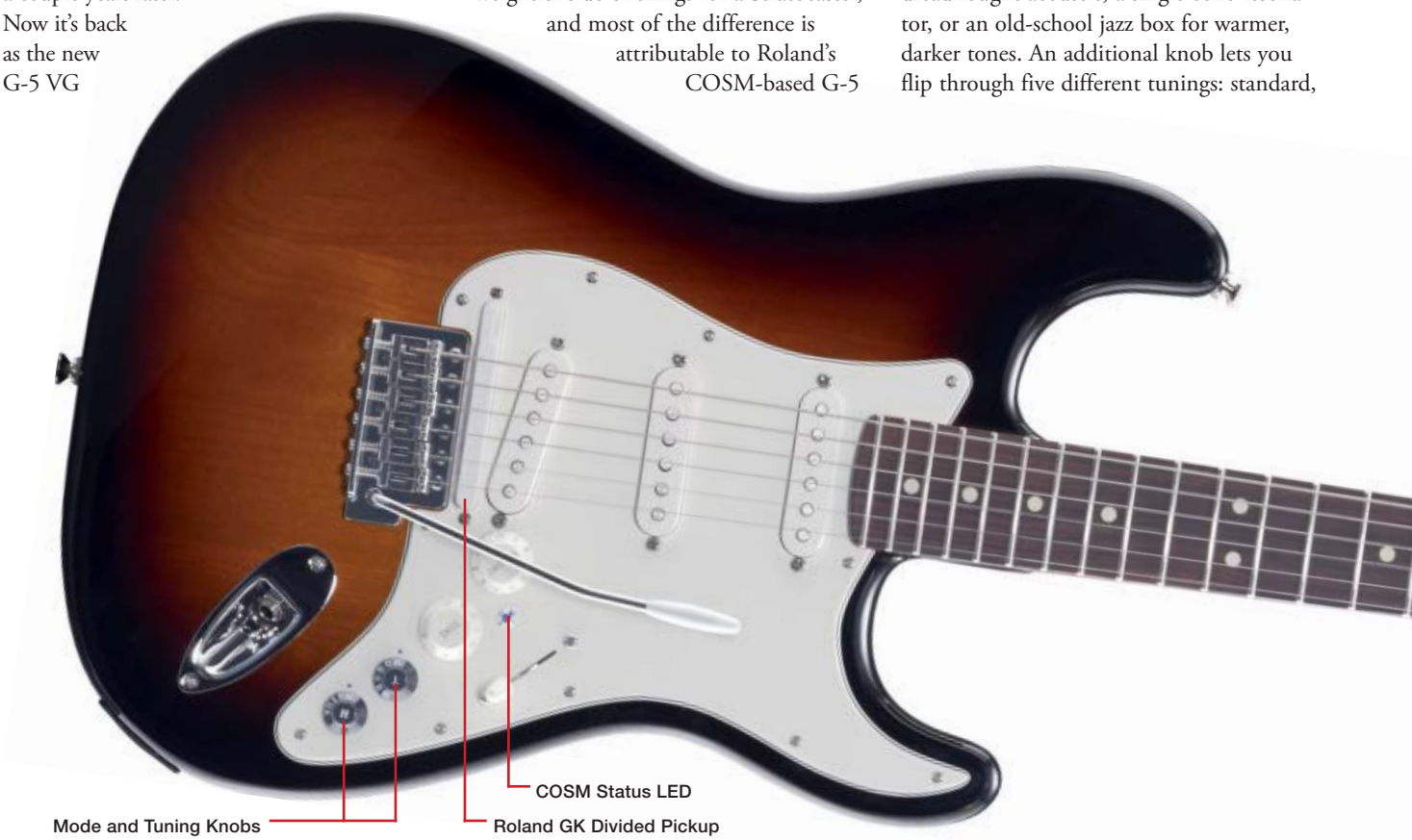
For a lot of musicians, the Roland brand evokes thoughts of game-changing drum machines, tight drum sequencing, and thick synth tones that reach into the stratosphere. Roland has made quite an impact on the guitar industry too—not least of which are the super-influential effects from its BOSS division. And players such as Adrian Belew, Robert Fripp, and Alex Lifeson have coaxed some of the wildest guitar tones ever using the company's guitar synths and modelers like the GR-500, VG-99, and GR-55. In 2007, the company partnered with Fender to create the VG Stratocaster, which modeled various guitars and a multitude of pickup configurations, only to discontinue it only a couple years later.

Now it's back as the new G-5 VG Stratocaster, and it packs the much of the same versatility and tones as its predecessor.

Head of the Class

The new VG reissues are built in Fender's Mexican factory with all American Standard parts, aside from the bridge and pickups. As far as the guitar's basic specs go, things are pretty familiar—an alder body, three Fender standard single coils with ceramic magnets, five-way pickup switch, synchronized Fender tremolo, and a 22-fret, 25 1/2" scale maple neck with maple or rosewood fretboard. Our review model featured a hand-painted three-tone sunburst and rosewood fretboard.

At 8.4 pounds the VG is on the weightier side of things for a Stratocaster, and most of the difference is attributable to Roland's COSM-based G-5 circuitry, which was expertly packed inside the body via a large rout on the back. The signal is processed via a bridge-mounted GK divided pickup and shaped by one of three COSM electric guitar models—Stratocaster, Telecaster, dual-humbucking Stratocaster—or one of five acoustic instruments. The guitar's five-way switch works as a normal five-way, but also offers some new and useful options for guitars that typically have fewer pickup switching options, like traditional and wide-range modes for the neck and bridge of the Tele. It also cycles through five additional stringed instruments in the acoustic mode, allowing you to call up an electric sitar, nylon classical, a dreadnought acoustic, a single cone resonator, or an old-school jazz box for warmer, darker tones. An additional knob lets you flip through five different tunings: standard,



dropped-D, DADGAD, open G, baritone, and 12-string standard. And if modeling isn't your thing all of the time, the entire COSM circuit can easily be switched off, kicking in the guitar's standard electronics.

A Strat By Any Other Name...

The G-5 does a lot. But one of the most outstanding qualities is how boneheaded-simple it is to use. Fender and Roland packed a lot of options into the guitar, but they didn't go overboard with tons and tons of models, effects, and computer interface options. Some might view that as a drawback, but I was pleased to find that the guitar sticks to trying to do a reasonable amount of things well, instead of trying to cover every tone under the sun.

Plugging into a Fender '65 Twin Reverb reissue, I strummed some clean chords with the guitar's standard magnetic pickup system switched on and got the spanky, piano-like set of tones that the Strat is known for. There were some pretty big differences compared to the guitar's simulated Strat model, however—most notably the volume level and high-end attack. Even after adjusting the GK pickup to various heights, the output level of the model still wasn't as loud and boisterous as the standard pickups were. The Strat model's tone also had less midrange focus, especially with the bridge pickup flipped on. Despite those differences, I actually liked the fact that the modeled Strat had a distinctly different tonality than the standard mode. The brighter, more focused high-end attack served up an entirely new range of tones that were still very Strat-like, but with a more modern, smoother edge—a Mark Knopfler to the standard pickups' Stevie Ray Vaughan, if you will. If the volume levels had been even between the two modes, it would've been really hard to tell that the modeled Strat wasn't an entirely different Strat.

The other electric models were similarly excellent, and Roland did a very good job retaining each model's inherent tone quirks—especially the Telecaster model, which had a really great upper-mid snarl and growl when I pushed the Twin's input with a Fulltone OCD pedal. Roland also deserves props for making full use of the guitar's five-way switch with the Tele model, which dishes a wonderful emulation of Fender's fan-favorite Wide-Range pickups from the '70s Telecaster Deluxe, Thinline and Custom, and Starcaster. Those pickups had a really cool mix of single-coil cut and thick humbucker thump, and Roland's emulations are faithful to the originals—albeit with more clarity and front-and-center attack qualities. Using the guitar's multiple tuning modes opened up even more tonal avenues, but they were only in perfect tune when the actual guitar itself was—meaning if the guitar wasn't in perfect standard tuning, the modeled tunings would be noticeably off.

The humbucking emulations through a 50-watt Marshall JCM800 head were thick and full, and not surprisingly more closely aligned with that of a humbucker-loaded Strat than an SG or Les Paul. Roland's virtual humbuckers are designed to replace the frequencies lost by typical humbuckers, and are fairly bright, yielding full, clear tones that fit in perfectly for Iron Maiden-inspired galloping and open power chord work.

The guitar's acoustic models are less convincing, especially the two steel strings. Run through a PA, it was evident that I was playing a digital emulation of those guitars when I would strum chords, and even more obvious when I would play single notes. There just wasn't much warmth to the emulations, and they could definitely benefit from tweaks to make them a little thicker in the midrange. They're certainly passable interpretations for quick acoustic interludes in songs but hardly rich enough to replace your prized D-18 or J-200. The tone control is assigned as an onboard reverb effect in this mode, but there wasn't a whole lot of range.

The Verdict

Fender's partnership with Roland has produced some really interesting and useful tools, and the G-5 VG Stratocaster is a worthy addition to the list. It's not a jack-of-all-trades, which works in its favor. Most gigging guitarists really only need a handful of conventional choices for their music, and that's who this guitar is ultimately tailored for. While a $1,299 price tag next to a headstock stamped "Made in Mexco" might give some pause, the guitar is essentially an American Strat that's been assembled south-of-the-border. And if the thought of a more tone options that can be called up at a moment's notice perks up your ears, it's worth investigation to see if your needs justify the relative expense.

RATINGS

Roland G-5 VG Fender Stratocaster, $1,299 street, rolandus.com

Pros: Great emulated electric models. Easy to use. Can be used as a standard Strat if desired.

Cons: Acoustic models have a digital edge. Weak acoustic reverb.

Tones	4.5
Playability/Ease of Use	4.5
Build	4
Value	4

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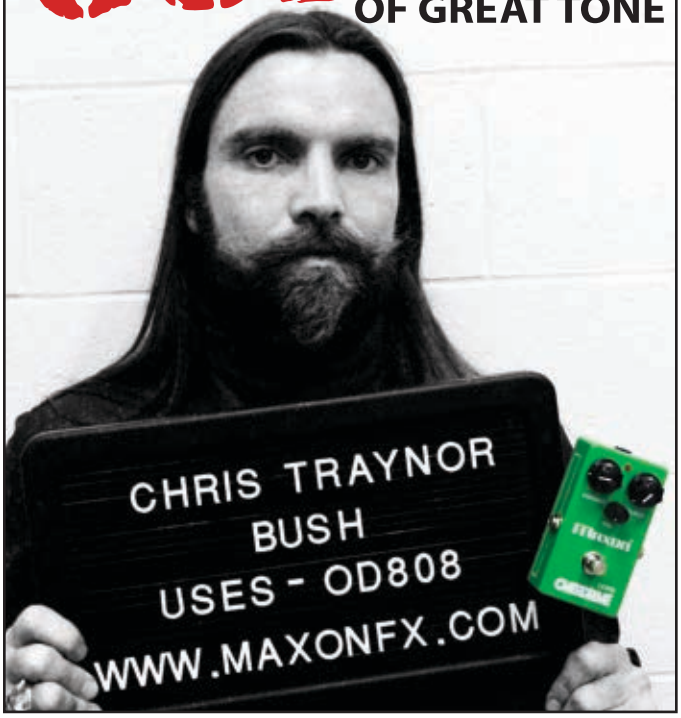

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DIAGO
LITTLE SMASHER

BY MATT HOLLIMAN

Best known for its pedalboard and pedal-powering gear, UK-based Diago has a self-proclaimed zeal for stripping design to its essentials and focusing on necessities. That focus on efficiency is embodied in Diago's pedalboard tools. But these days, the company's less-is-more design philosophy is taking shape in even more interesting ways, like the 5-watt LS01 Little Smasher guitar amp head—which manages to pack a lot of tone and utility into a compact enclosure not much bigger than your average stompbox.

Diago is not alone in the mini-amp sweepstakes, of course—the miniscule EHX 22 Caliber and 44 Magnum, Orange Micro Terror, and Z.Vex Nano Head all specialize in delivering a lot of punch from diminutive forms. But the Little Smasher impresses with a design that's minimalist, moves easily from pedalboard to desktop, and opens up a wealth of amplification options whether you need a backup rig or an amp you can toss in a backpack.

CLICKHere...
to hear audio clips of the amp at premierguitar.com/sep2012

Dead Red Simple

The solid-state LS01 Little Smasher does its business with just four basic controls—bass, treble, gain, and volume. The active bass and treble controls each have a sweep range of -30 dB to +15 dB, and dialing up your desired level of crunch is achieved through the gain and volume knobs. Four cascading gain stages also mean you can reach a rather saturated growl at mid-field or max the gain for super-heavy tones.

On the backside of the Diago, things are equally simple. There's an input for your guitar, an output for the speaker cab, an on/off switch, and a 9V DC jack. Luckily you can hook this little guy up to nearly any cab/speaker configuration of 4, 8, or 16 Ω impedance—a distinct advantage when you're up against a mystery backline. Few of Little Smasher's competitors enjoy this flexibility.

The entire unit is housed in a 14-gauge carbon-steel enclosure that will definitely withstand the blows of the road. And at just shy of 1.5 pounds, the Little Smasher is heavy enough to stay put without flying off the desk or cab if you sneeze, but still light enough to tote in your backpack or shoulder bag. Of course you can always affix this miniscule amp to the end of your pedal chain, which enables fast EQ switches and other adjustments in live situations (and Diago also supplies pre-cut Velcro strips for this very purpose).

Smashing Tone

My first go-round with the Little Smasher mated the Diago with a closed 4x12 with Celestion Vintage 30s—an ensemble of odd visual proportions to be sure, but often surprisingly capable from a sonic perspective. With all controls around noon and a Stratocaster in hand, the Diago and 4x12 yielded a nice mid-level crunch with a bright and sometimes brittle treble range. Increasing the bass helped to flesh out the more fragile aspects of the tone, and it wasn't too hard to wrangle a swaggering Brit-amp tone by playing with the gain and volume knobs.

Maximizing the gain control delivers a deceptively large, Marshall-like brawn. And

it's in these rowdier surroundings that the Little Smasher shines. Even with less aggressive gain settings you can get great sustain out of single-coils and humbuckers. I got some of my favorite tones by maximizing the bass *and* treble controls to +15 dB. This effectively creates a scooped-mid profile that works very well with a heavy gain setting. This EQ setting also enabled me to clean up my tone by rolling back the guitar's volume—a much more effective way to dial in more chiming tones than trying to coax it from the amp alone, especially with a humbucking Les Paul.

The search for a cleaner sound from the amp meant rolling the gain back to the 8 o'clock position. This was clean enough, but rather quiet. And unfortunately, the overdrive tones you get between clean and full-blown overdrive tend to have a distinctly solid-state sterility—a common affliction for many amps of this type.

I also tested the Little Smasher with a closed back 2x12, which resulted in a more compressed overall tone that was a better match for the Diago. Pedals worked more effectively with the Little Smasher in this context too—bettering the Celestion-equipped 4x12 and it's darker voice as a best mate for the Diago and a more pedal-oriented rig. Overdrives could still drive the Little Smasher to a crunchiness that bordered on clipping, especially at higher gain settings.

The Verdict

Diago's Little Smasher is an achievement in amplifier portability with some pretty decent tones, including some crunchy sounds that will make you believe you're using something much bigger. While few players will end up using the Smasher as their main amplifier, save for the confines of very small clubs and coffee houses, it's a fantastic backup amp, a practice workhorse, and a potentially cool recording tool. With a street price of about $190, Diago falls about in the middle of the pack of the mini amp category, though its robust design suggests that it may be among the most bulletproof mini amps out there. If you're just looking for a small amp on the cheap, any number of solid-state combos can do the trick. But if portability is at a premium, or you're a player that does a lot of fly-in shows where back line is a guessing game, the Little Smasher is an inexpensive and sweet-sounding bit of insurance.

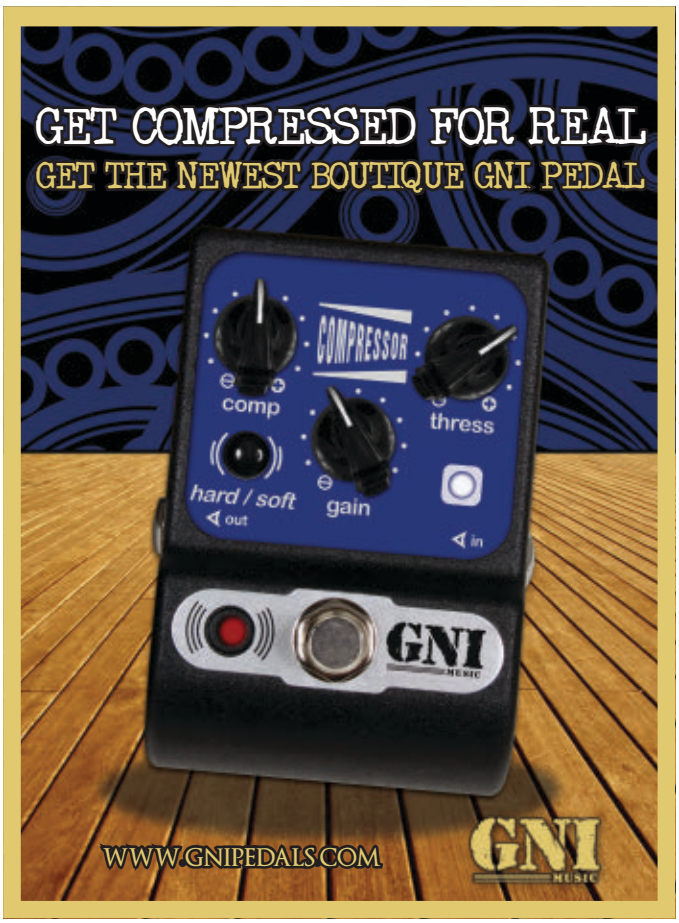
RATINGS

Diago Little Smasher, $190 street, diago.co.uk

Pros: Portable and rugged. Nice high-gain tones.

Cons: Can sound sterile at slightly overdriven levels.

Tones	3.5
Ease of Use	4
Build	4
Value	3.5



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EARTHQUAKER RAINBOW MACHINE

BY CHARLES SAUFLEY

CLICKHere...
to hear audio clips of the pedal at premierguitar.com/sep2012

If you're a stompbox freak, it's hard not to be knocked out by the creative explosion at EarthQuaker Devices. In the last half decade, the little Akron, Ohio, company—started by former Black Keys road manger Jamie Stillman—and its modest line of killer fuzz and distortion boxes has morphed into a hydra-headed beast that seems to turn out new sound-manipulation tools faster than Planters cranks out peanuts.

These days, EarthQuaker's irreverence and sonic adventurism finds the company as willing to toy with analog circuits for purists as DSP pedals for bold experimentalists. The Rainbow Machine reviewed here falls in the latter category, and it's a great example of how EarthQuaker's willingness to be bold and deviant and to explore underutilized tone textures results in stompboxes that stoke musical invention just as much as they fine-tune your tone.

The Rainbow Machine is a pitch-shifting, modulating, harmonizing, time-warping pedal that not only alters pitch, but also gives you the power to transform those pitch modulations using time-based controls. The effect can be as radical as an analog synth in the hands of a science-fiction soundscape artist, but it can also be subtle, tasteful, and highly effective in low-key applications where it can add unexpected and delicious textures to chords and simple leads and hooks.

Six Ways over the Rainbow

The DSP-driven Rainbow Machine is not the kind of pedal you're likely to dial-in right out of the box. Some controls get more extreme on either side of high noon, others increase in intensity as you sweep clockwise, while others work in the opposite direction. To top it off, most of these functions are too deep to conveniently define with a single label. And some are just willfully and beautifully obscure. But what the Rainbow Machine lacks in intuitiveness, it pays back with power and flexibility. A little extra time spent learning the power and personality of each control pays big dividends in uncovering the wealth of sound potential in the Rainbow Machine.

The pitch control is perhaps the most vital knob. It determines the interval of the shifted signal. Whenever things get too squirrelly, returning the pitch knob to 12 o'clock is they key to dialing everything back. At noon, you get two tones in unison, tones that—depending on other knob settings—tend to have a slightly modulated reverb quality. Turn pitch all the way counterclockwise, and you get a tone that's a fourth down from your fundamental. All the way clockwise, you get a tone that's a third up. In between, the pitch knob yields a world of dissonant harmonies that can vary from mellow to monstrous and demented.

To the right of pitch, the primary knob adjusts the level of the pitch-shifted signal. The secondary knob controls the level of a second signal that's an octave lower or higher than your pitch-shifted signal, depending on which side of noon you set the dial.

The tone control determines how bright or dark your pitch-shifted signal is, and it's one of the keys to determining how subtle or radical the Rainbow Machine is in a given musical application. The tracking knob dictates the time between the fundamental and pitch shifted signals, enabling everything from arpeggio- to delay- and reverb-like effects. But the Rainbow Machine's *piece d'resistance* is the magic knob, which induces intense regenerations and modulating trails that send the pedal into more cosmic realms and hallucinogenic states—it's a control so powerful that it gets its own on-off switch.

Exploding Color

It's best—or easiest, rather—to begin exploring the Rainbow Machine from a more reserved setting. And when you do, you'll discover that the mellowest settings are the ticket to interesting takes on familiar effects. Keeping the pitch knob even, adding a touch of primary and high-octave secondary tones, and keeping the tracking time short lends a modulated chorus effect that gives jazzy passages a little movement—especially with the tone knob rolled back. With the tone knob up, the chorus takes on a more flanger-like color. With all three pitch-related controls at noon, the pedal takes on a more linear chorus sound that you can shape with a touch of quasi-slapback echo and reverb as you sweep the tracking control counterclockwise.

Rolling the pitch-shifted signal to a full fourth down and keeping the primary and secondary controls at mild settings yields an almost-robotic, Duane-and-Dickey harmony-lead sound, while dialing a third up and moderating levels and delay can contribute a queasy *barracho* feel to Tex-Mex and country chord melodies and single lines. Though I didn't have an expression pedal to control the pitch, even manual manipulation of the control gives you access to cool, seasick, quasi pedal-steel effects that would be a blast to use on the fly.

For all the sound-twisting potential of the Rainbow Machine's pitch controls, it's the

magic knob that unlocks its most warped and extreme workings. Crank it and the tone knob up, twist the pitch control a little right of center, and turn the tracking knob counterclockwise, and the Rainbow Machine becomes a teleportation device—generating the kind of star-trail, fade-to-dream sonics that you hear in the intro to the Butthole Surfers' "Who Was in My Room Last Night." Yet, for all the narcotic psychosis unleashed by the magic knob, with tone and magic set less aggressively the Rainbow Machine will just as easily approximate an Echoplex-style short delay, replete with tape-warble-like modulation and an ethereal feedback trail.

The Verdict

The enormous range of unique, practical, and downright *bonkers* sounds within the Rainbow Machine could wear out even the most tireless knob tweaker. This wealth of sounds makes it an ideal studio tool that can transform hooks and solos from ordinary to arresting. It's easy to imagine the Rainbow Machine as a show-stopping live device, too—particularly with an expression pedal in the mix. But for all its power to stop a listener in their tracks, some of the Rainbow Machine's most beautiful sounds—like the modulated chorus and slapback—are the most familiar. And the Rainbow Machine does a remarkable job of making those tones just bizarre and left-of-center enough to inspire double takes. We've gotten used to such surprises and twists of reality from EarthQuaker, but even by their lofty standards, the Rainbow Machine is one *very* deep bag of tricks.

RATINGS

EarthQuaker Devices Rainbow Machine, $225 street, earthquakerdevices.com

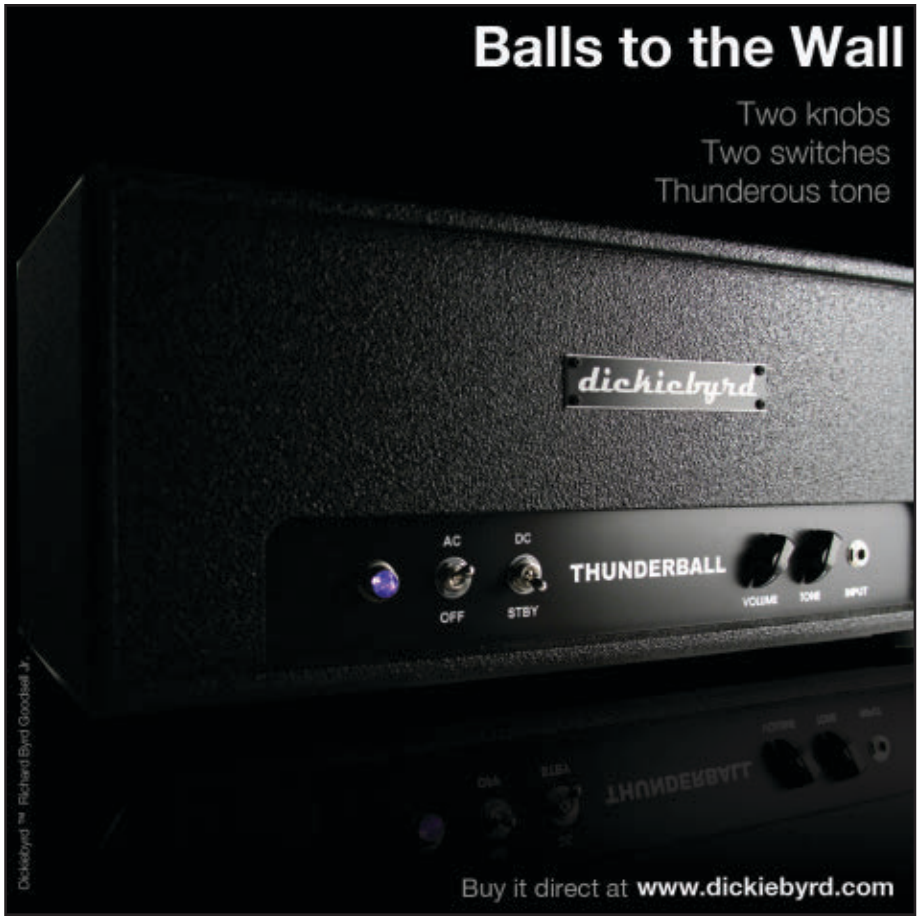
Tones	4½
Ease of Use	3
Build	5
Value	4½

Pros

Spectacular range of musical tones, from subtle and classic to wild and maniacal. Well built.

Cons

Less than totally intuitive.



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RAINGER FX
DR FREAKENSTEIN FUZZ

BY CHARLES SAUFLEY

CLICKHere...
to hear audio clips of the pedal at premierguitar.com/sep2012

Strange things can happen in the gear crucible that is Musikmesse. This year, while hanging out at the Pigtronix booth, editor in chief Shawn Hammond and I met a very interesting Londoner named David Rainger carrying a most curious device. It bristled with switches and knobs that would look more at home in a 1950s lab than a pedal, so it was little surprise that Rainger had dubbed the thing Dr Freakenstein Fuzz. The real surprise is how wonderfully and genuinely *freakish* it turns out to be.

One look at the unit reveals it's not timid. Plug it in, and the tones range from '60s gnarliness to monstrous, Fuzz Face- or Muff-like sound explosions. But it's also tweakable, with unique oscillation features derived from its low-frequency oscillator (LFO)—which turns it into a quirky, altogether more adventurous fuzz.

Switch-Throwin' Freakenshow

Rainger's odd-but-brilliant work may be new to American eyes and ears, but the Freakenstein is an evolution of a notion that's been percolating in his lab for years. It's based to some extent on the Crash Sync circuit—a mutant collision of Blue Box and oscillator synchronization circuit devised by tweaker John Hollis that's been a favorite jumping-off spot for DIY builders. Rainger's own mutations, however, make the circuit an even more practical and sonically malleable variation on the theme.

The Freakenstein is built about as sturdily as mil-spec test gear, and its thick steel enclosure will take a nasty knock. The only thing less than rock solid are the two primary controls and potentiometers, which were a little loose. Inside, there's little to see apart from the underside of a very clean circuit board and the 9V battery bracket, both of which are affixed to the chassis securely and won't be rattling free from regular use.

Even if you're experienced in fuzz manipulation, it'll take a minute to familiarize yourself with how the controls work—not least because they can have a pretty significant effect on each other. The most prominent and oddball control is the power switch that likely gives the Freakenstein its name. It's a miniaturized version of the switch Dr. Frankenstein and other monster-movie scientists threw to bring their creations to life. But it's more than a gimmick. The switch powers the pedal on and off even if you're running off battery power, meaning you don't have to unplug cables on your pedalboard to save battery life. You can also use a 9V DC power supply.

The volume knob is the most obvious control—at least in terms of function. It regulates the output of the pedal. Beyond that though, things get less obvious. The osc. control alters fuzz overtones—clockwise turns emphasize octaves and other parts of the harmonic spectrum. It's also very effective for knob sweeps, during which it takes on the characteristics of an analog synth's filter.

If you don't want to perform that function manually onstage, you can flip on the mod switch, which essentially initiates an automatic sweep of the osc. function and disables the knob. In mod mode, oscillation occurs at a regular rate that can be set from fast pulse to slow swell with an adjustment of the rate knob. It's a logical-enough layout once you get a handle on basic functions, though the fact that the rate knob looks like and is placed where a second footswitch might go could be confusing at first.

The small hi/lo button along the front panel controls the intensity and depth of oscillations, not unlike the color switch on a Small Stone. The two 1/8" inputs next to it are for Igor—an optional footcontroller that can be used to sweep the osc. range (if you use the osc. input) or to adjust the bias of the modulation oscillator (when you use the mod range input.). The needle meter indicates input level, and the backlight pulses to indicate the LFO's oscillation rate.

The Creature Runs Free

At its most basic, the Freakenstein's fuzz is feral, buzzing, husky, and intense, at times

evoking a supercharged Fuzz Face with a hint of Roland Bee Baa or Fuzzrite. Unlike some specimens of those classics, however, there's nothing approaching a volume drop with the Freakenstein. You can be quite confident it will rise above the fray in almost any context. Through a small amp like a Fender Pro Junior, the Freakenstein sounds incendiary. Through a larger amp like a Twin, it can sound every bit as dangerous, though a big clean amp will highlight some of the scratchier, buzzier, more '60s-styled facets of its voice—no bad thing unless you're looking for smooth, singing distortion.

Sweeping the osc. knob can alter that voice in ways from subtle to heavy—emphasizing octave overtones or squashing bandwidth to get throatier or more nasal variations on the basic fuzz voice. It's not the easiest for dialing in exactly what you want, but it does add a very deep layer of tailoring that considerably expands the breadth of colors.

The Freakenstein is designed to be used all-out. A built in noise gate—not a bad idea on a fuzz this hectic—means that running your guitar less than wide open finds your signal crapping out prematurely. And if you don't practice using the pedal a bit—especially in a band context—you can easily find yourself in situations where it's tough to pull back the throttle. Once you have a handle on the volume, tailoring the depth and rate of the LFO becomes very intuitive. Using the Igor footcontroller is the best way to manipulate the LFO on the fly, though it's not always completely predictable—particularly because it can vary in effectiveness, depending on whether you're on a hard floor or a carpeted surface.

RATINGS

Rainger FX, $355 street, raingerfx.com

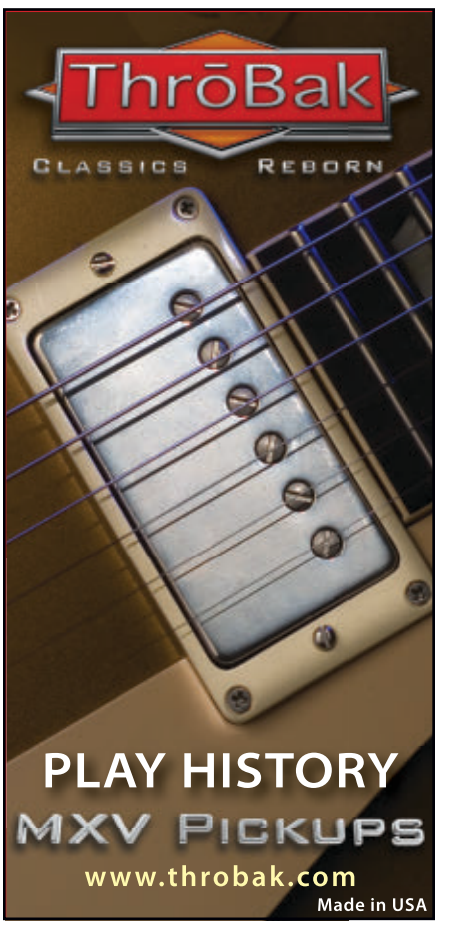
Pros: Versatile, if hectic and unpredictable at times. Great for out-of-the-ordinary-to-radical fuzz for riffs and leads. Nice palate of sci-fi effects.

Cons: Has to be used with guitar volume wide open.

Tones	4.5
Ease of Use	3.5
Build	3.5
Value	3.5

The Verdict

With its test-instrument-like design, the brilliant and inspired Dr Freakenstein Fuzz is a dream device for studio-oriented tone manipulators. But while it's easiest to envision it as a recording tool, this pedal's ferociously loud and cutting voice makes it a great candidate for live situations where you're less interested in tonal purity than achieving the sonic equivalent of a machete hacking away in a slasher flick.

At its tamest, it's far from subtle. But it can work beautifully as an (almost) conventional fuzz in anything from garage punk or stoner rock to experimental and noise contexts, where the additional colors from the oscillator make this pedal every bit as freaky as advertised. For any player aching to break away from the pack and explore the dark, manic alter egos of smooth, controllable fuzz tones, Rainger FX's delightful little monster awaits.

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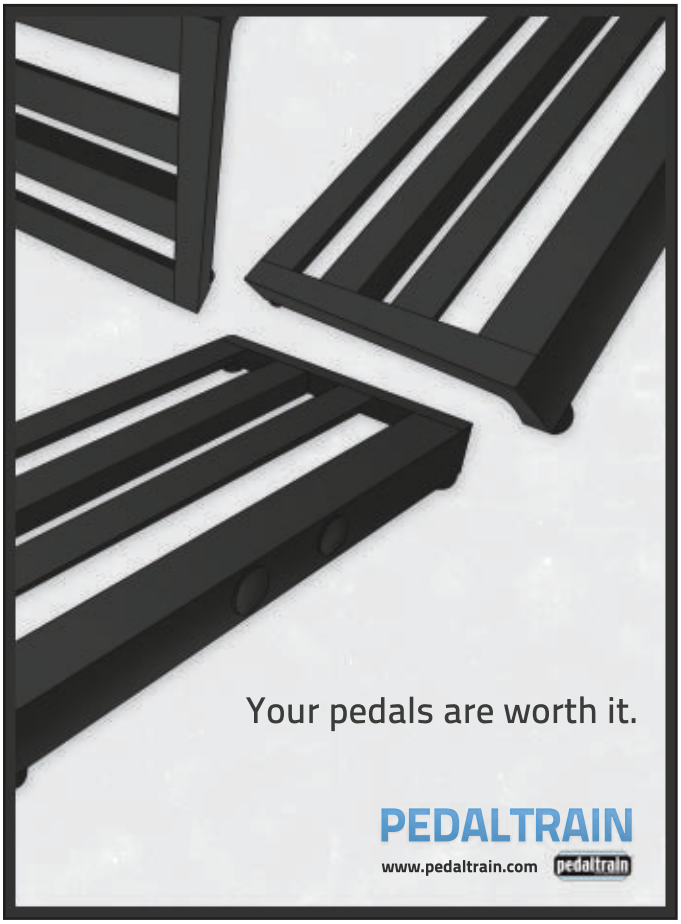
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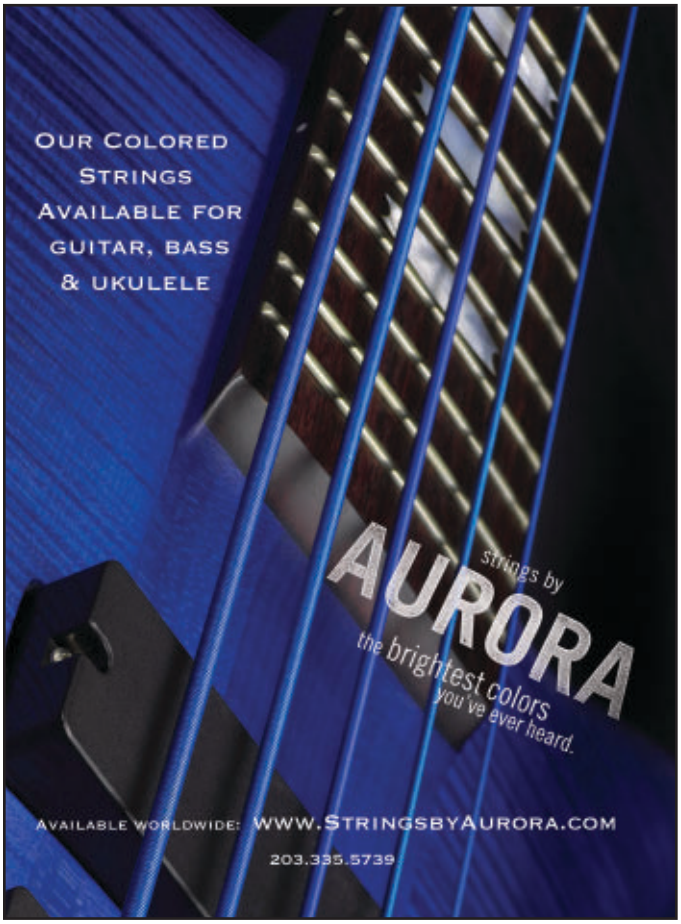
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PREMIER GEAR

RITTER R8 SINGLECUT

BY DAVID ABDO

If you were to classify personality types according to how they go about purchasing bass gear, there are essentially two main personas at opposite ends of the spectrum—the scientist and the artist. The scientist analyzes an instrument's materials and how they react with each other. When assessing overall quality, the scientist also takes other factors into consideration, such as the builder, an instrument's vintage, and the design. On the other side of the spectrum, we have the artist. These folks seek an instrument that allows them to align their musical chakras and use their instruments as a means of expression.

Most of us fall somewhere between the two, and we oftentimes play an instrument that caters to one personality more than the other. But on rare occasions, we'll find an instrument that excites the inner scientist *and* unlocks unlimited creativity from the artist. Jens Ritter's recent creation with the R8 Singlecut just happens to be one of those occasions.

CLICKHere...
to hear audio clips of the bass at premierguitar.com/sep2012

A Singlecut Above the Rest

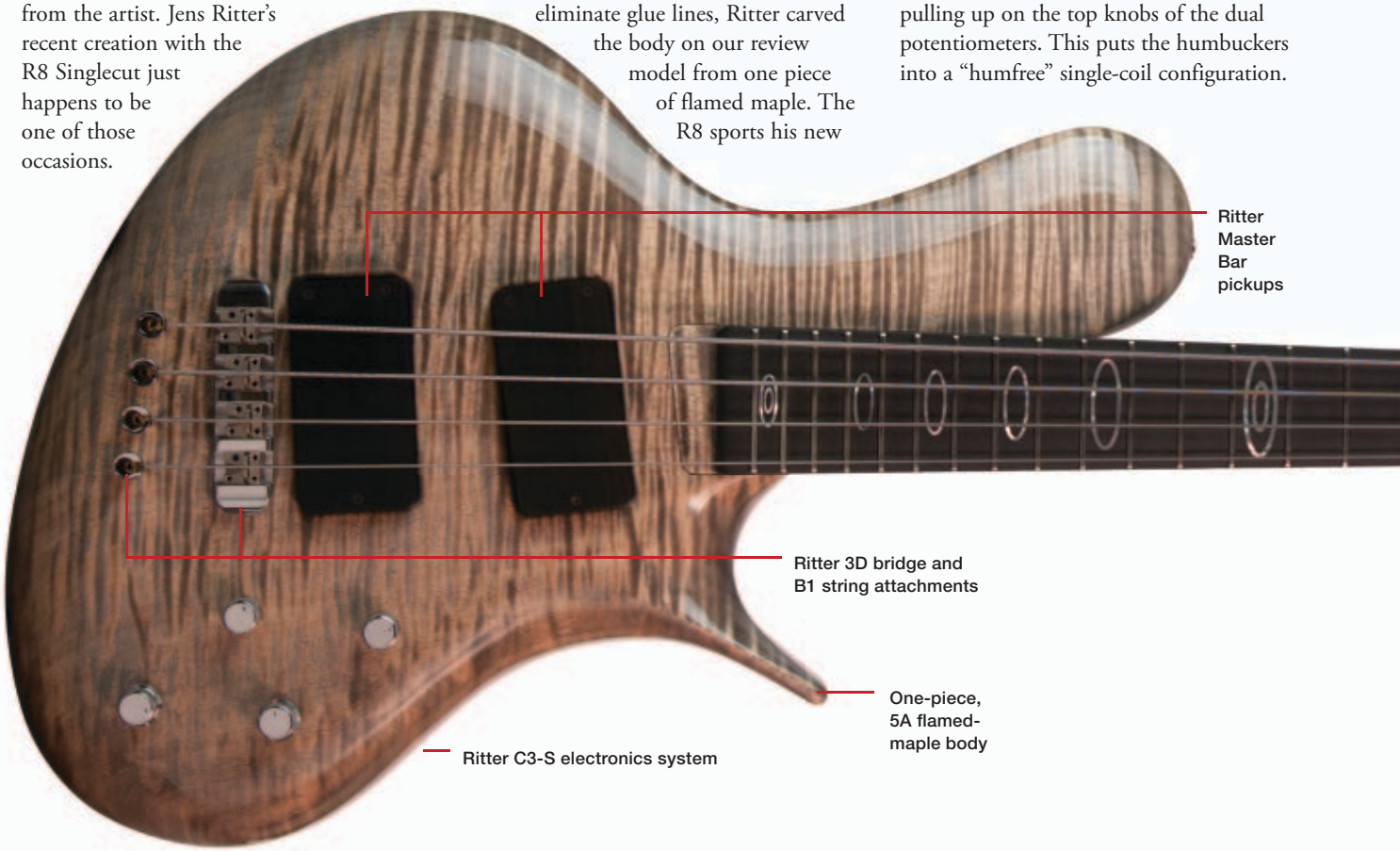
Ritter's "what if?" approach to bass building has earned him a reputation for producing instruments that combine unique designs with supreme quality. And it doesn't take long to realize that the R8 Singlecut is an instrument of the highest craftsmanship.

Many single-cut instruments use neck-through construction, but Ritter chose a bolt-on neck for his R8, believing this improves the midrange presence and provides a more responsive string attack. Supported by ten stout screws, the 3-piece bolt-on neck is constructed of quartersawn maple and topped with a dark ebony fretboard that's appointed with oval-shaped pearl inlays.

To achieve maximum vibration and eliminate glue lines, Ritter carved the body on our review model from one piece of flamed maple. The R8 sports his new high-gloss finish called captain silver—a stunning color that enhances the depth and definition of the flame with a smoky, striped look.

Ritter's 3D bridge, a system he designed to optimize the transfer of string vibrations, is made of heavy brass and offers conventional adjustments, as well as the means to shift the string spacing. The ball end of each string is supported by a separate B1 string attachment. Ritter says these individual saddles allow the strings to vibrate independently of each other and this enhances tonal clarity throughout the bass.

The R8's Ritter-designed pair of Master Bar pickups are switchable triplebuckers—each consisting of two active coils and one passive coil—and are dressed with ebony covers. Though Ritter's accompanying C3-S EQ system may appear to be a conventional 18V preamp at first glance, it has some twists that expand the R8's tonal palette. The master volume has a push-pull potentiometer for switching between active and passive modes, and below the master volume is a stacked bass and mid EQ. The other dual potentiometer allows one to cut or boost the treble on top, and the ring below it operates as a tone control while in passive mode. Aside from the blend knob, further tonal transformations can be achieved by pulling up on the top knobs of the dual potentiometers. This puts the humbuckers into a "humfree" single-coil configuration.


Ritter Master Bar pickups
Ritter 3D bridge and B1 string attachments
One-piece, 5A flamed-maple body
Ritter C3-S electronics system

It's Pretty, but How Does It Play?

Once my initial oohs and aahs about the R8's looks and features settled, I hung the Bavarian beauty with a strap. Within seconds of standing with the R8, I could feel Ritter's ingenuity at work. The shape of the bass balanced perfectly, whether it was played at an angle or horizontally, and there were no signs pointing to possible shoulder or back fatigue. Not knowing how the small lower horn would allow the bass to balance in a seated position, I set the R8 on my thigh and it maintained its position, even while shifted at a slight angle.

From a performance perspective, the Ritter R8 played even better than it looks. Unplugged, the bass delivered notes quickly, with a deep resonance that could be felt throughout its neck and body. I found no dead spots on the neck and the bass conveyed consistency and punch from the lowest notes on the 4th string to the highest notes on the 1st string. Speaking of the neck, the glossy finish offered fast, smooth transitions up and down the fretboard, without any stickiness. As someone who prefers satin-finished necks, I have to say this is one of the best high-gloss necks I have ever played.

Plugged in, the R8 shined. Played through a Phil Jones D-600 head, a pair of Glockenklang Space Deluxe 112 cabinets, and Analysis Plus cables, the pickups were silent—accurately replicating the characteristics of the R8's acoustic tone. When I plucked the strings in passive mode, the bass was very responsive to my touch as I moved my right hand from the end of the fretboard to the bridge. And while most basses will certainly change their tonal character with such movement, the R8 did so to a much greater degree.

Soloing each pickup, the R8 offered the sounds indicative of each pickup's placement, but with more clarity. The bridge pickup brought the snarl, but added a woody snap and a brighter top end. The neck pickup sounded round and warm on its own, with a subtle low-mid bump. And combining the two created a balanced, articulate tone that would invite channeling your voice through the instrument. Although the single-coil mode made for a less aggressive sound and offered potentially practical tones, I found the R8's humbucker mode to be the most pleasing to my ears.

In active mode, the nicely voiced EQ enhanced the tonal traits of the maple and ebony woods. The bass provided the notes with a warmer foundation, the mid added some major punch, and the treble brought presence with very smooth highs.

Such GR8 Heights

Pleased with the R8 Singlecut in a quiet environment, I decided it was time to take it to the stage. And the bass went through the most rigorous of field tests, as I played it at a variety of gigs through a number of different amp and cabinet configurations.

Though each rig added its own character to the R8's sound, there was one major constant that stood out at each venue—the Ritter R8 Singlecut was designed to make music. With the slightest change in touch, I could go from supportive bass lines that sat clearly and comfortably in the mix, to authoritative fills and solos that broke through an ensemble. Every note was present across the fretboard, chords came out full and balanced, and harmonics emerged with a bell-like sparkle.

There were many pleasing moments with the Ritter on stage, but three occasions really stood out for me that demonstrated the R8's quality and versatility. While playing Michael Jackson's "P.Y.T." during a cover-band gig, I was able to create a stabbing and satisfying snarl when soloing the bridge pickup and boosting the mid EQ—saving me from having to haul a keyboard to the gig in order to replicate the original synth-bass parts. And when it came time to attempt Louis Johnson's slap fills in the middle section, I quickly rolled the blend knob closer to the middle, backed off the mids, and boosted the bass and treble. There was an instant and dramatic change in color, almost recreating Johnson's signature Stingray sound.

Boosting the mid and treble with the blend knob turned forward and fully favoring the neck pickup, the R8 Singlecut excelled during a Tower of Power set with a horn band. The 16th-notes came out tight and punchy, and added a percussive pop to ghost notes—essential for trying to cop Rocco Prestia's legendary lines.

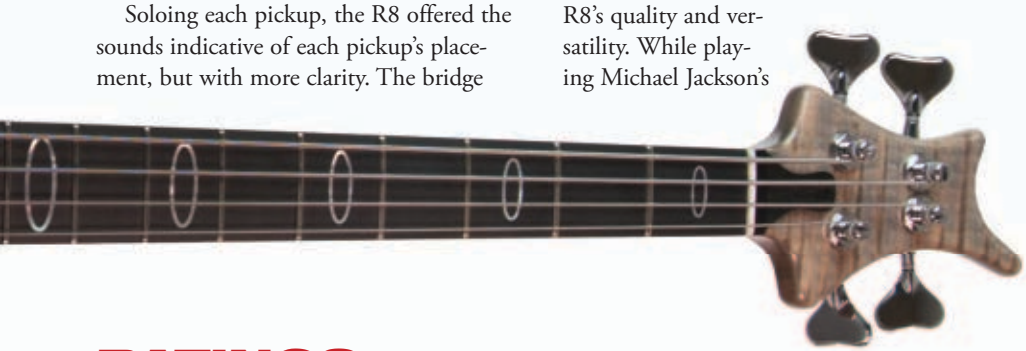
I also used the R8 while performing with a jazz trio. And even though it didn't *replace* the sound of an upright, the bloom of each note conveyed fretless-like warmth. Its sonic sensitivity delivered varying vibratos with ease, offering ballads a beautiful bass voice.

For Your Consideration

Because Jens Ritter builds all of his basses by hand, the Ritter R8 is available with a seemingly unlimited number of options. A standard R8 Singlecut is priced at about $5,000, but the R8 reviewed here can be yours for $9,500. Yes, this R8 Singlecut commands a hefty price tag, but consider something: Many professional musicians who depend on supreme playability and tone will invest *serious* money on their instrument, potentially into the five-figure range. And after this review, I can say with confidence that the Ritter R8 Singlecut may be worth every dollar when you consider what you get.

The Verdict

The R8 Singlecut bass is an extraordinary handmade instrument and is an ideal choice for the professional bassist or one who is willing to spend top dollar for the ultimate in tone and craftsmanship. Many who have experienced Ritter's basses consider them to be works of art. But complementary as that may be, it does not do his work justice, for the Ritter R8 Singlecut goes far beyond being just another pretty face. Intelligently engineered, this bass possesses a voice and playability that provides a bassist the ultimate gift—uninhibited freedom of musical expression.



RATINGS

Ritter R8 Singlecut, $9,500 street (as reviewed), ritter-instruments.com

Pros: Articulate, responsive tone. Superior construction. One of the best 4- strings in its class.

Cons: Expensive.

Tones	5
Playability	5
Build	4.5
Value	4

CLICKHere...
to hear audio clips of the bass at premierguitar.com/sep2012

GODIN
SHIFTER CLASSIC 4

BY STEVE COOK

When looking at the composition of a bass guitar, one thing is glaringly evident: the basic construction and features have remained virtually unchanged for 60 years. Cut some wood, add little metal here and there, a wound pickup or two, and boom— a bass is born. While there have certainly been a number of manufacturers that have introduced radical body designs and features that look like they were created at NASA, mainstream low-enders tend to stick with what they know. And the folks at Quebec-based Godin tend to stick with what *they* know, which is excellent guitar building while maintaining traditional overtones. Debuting the Shifter bass to the world a couple years ago, Godin has followed up in fine fashion with the Shifter Classic.

No Shape Shifter

The Shifter Classic arrived for review in a very nice, deluxe gig bag. With shades of a P bass, a J bass, and a Tele all rolled into one, I was thoroughly impressed seeing the instrument for the fist time. The contoured body of the Shifter Classic is constructed of Canadian Laurentian basswood, making it relatively light and long-gig friendly. Our review model's maple neck was outfitted with a maple fretboard, but a rosewood fretboard is an available option. Boasting a small headstock with a recognizable Tele-like design, the C-shaped neck, 16" fretboard radius, and Jazz-like 1 1/2" nut width really made the neck feel as familiar as home. And the semigloss, black burst finish (a yummy crème brulee option is also available for an additional $100) and half-sized 3-ply pickguard add some nice touches to the bass, giving it the vibe of an older instrument.

Keeping with the conventional theme, Godin has loaded up the Shifter Classic with passive Godin pickups in a P/J-style configuration, but with a twist: a 4-postion selector switch. This welcome feature allows the player to select either the bridge or neck pickup individually, blend them in parallel, or blend them in series. And the electronics are managed with the single volume- and single tone-control knobs.

Flip the Shifter Classic over, and you will find that the neck is a bolt-on, but with six—count 'em, *six*—screws holding it all together. My only complaint with the design is that the heel could be a *little*

smoother at the joint, but that's the soloist in me talking. The bridge holds a nice little surprise by giving one the option to string the bass on top or through the body. I appreciate this option because there have been times with *all* my basses where I have wanted to have that alternative, if for nothing more than to experiment with tone and sustain. Hats off to Godin on this one.

Shift Into Low

It's not difficult to jump into great tone with the Shifter Classic. While the first incarnation of the Shifter sported a trio of passive soapbars, Godin's more classic approach with this offering (hence the name) embraces the adjustment wonderfully. For this run-through, I was barreling full-speed into an Eden WT800 with a pair of 410XLT cabs, as well as a Warwick Quad IV head and an Eden 115XLT cab.

The first position of the 4-way switch activates the split P-style pickups at the neck. I was immediately impressed at how great the bass sounded with this setting. The tones were vintage-warm and woody, and I found myself playing a lot of old-school bass lines while happily rumbling the lampshades. Though the Shifter Classic won't replace your price-of-a-compact-car vintage P, it does have the same round and familiar tone that will sound great just about anywhere, with a slightly hotter output than the older standbys.

Position 2 runs the P- and J-style pickups in series, which adds a little bit of output and some midrange punch. Designed to appease the slap and pop players out there, I found this position to be a touch muddy, as if the tone were being choked in the higher frequencies. I actually felt that slap sounded better in the first and third positions.

Position 3 has the pickups in parallel, which retains the output of the neck pickup and evens out the tone for more J-like qualities. This blend of the P- and J-style pickups is smooth and concise, and what you would expect with this pickup combination—like a darker sounding Jazz without the bite. Finally, position 4 is the J-style bridge pickup by itself, which is a really nice-sounding all-around setting, but can get a touch nasally. Simply rolling off the treble alleviates some of this and helps produce a more useful and effective tone.

The fat tones from the neck pickups alone were enough to sell me on this bass, but I really liked having the options from the other settings as well.

The Shifting Scale

On the "position scale," my favorites were definitely 1 and 3, which gave me a nice variety of great tones from just these two settings. The fat tones from the neck pickups alone were enough to sell me on this bass, though I really liked having the options from the other settings as well, with the pickups running in parallel producing my favorite overall sound. But, not without a catch.

I found that the neck pickups didn't seem to like the impact of my thumb when striking the E string, which created an audible "pop." While I tried to reproduce this anomaly on my other instruments, I was unable to. Fingerstyle playing sounds fantastic on the Shifter Classic, and you'll be fine if you don't use your thumb with serious grit on the E string, but this discovery took a bit away from my impression of this bass as an all-around replacement.

The Verdict

Coupling traditional lines and the reputation of Godin, I was sold on this bass at first sight. Offering style, grace, and playability, the Shifter Classic has it all and is an excellent offering from a guitar company relatively new to bass design. Only narrowly missing the mark, it can get you *close* to both a P and a J bass. But in this case, that's okay. The Shifter Classic has its own, distinct voice, and the street price makes it a great value. I suspect the Shifter Classic will offer both blossoming and experienced bassists an outlet that they will enjoy for years to come.

RATINGS

Godin Shifter Classic 4 Black Burst SG, $695 street, godinguitars.com

Pros: Great feel, craftsmanship, and solid tone.

Cons: Neck pickup issue with thumb striking. In series pickup tone falls short.

Tones	4.5
Playability	4.5
Build	4.5
Value	4.5

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AMPEG
MICRO-CL STACK

BY JORDAN WAGNER

"Micro" practice stacks are nothing new, but have often been considered more of a novelty rather than versatile tools for tone. Though some companies have taken micro stacks to new levels with tube circuits, ported cabs, and volume attenuation to help inject better tone into the concept, the additions usually come at a price—oftentimes costing just as much as a nice combo. Ampeg's Micro-VR—complete with classic SVT appointments and a slew of tone-shaping options—has been a popular choice for bassists looking for a more portable rig, but it's still a little out of the price range that many players are willing to pay for such a rig. Their new Micro-CL Stack reviewed here, however, has a simpler feature set, applies a more modern SVT look, and boasts a very attractive price tag that's targeted towards the budget-conscious bassist.

CLICKHere...
to hear audio clips of the stack at premierguitar.com/sep2012

Have Bass, Will Travel

The Micro-CL is a seriously cool-looking rig, especially to those who stand in awe of its behemoth cousin, the Ampeg SVT-CL and matching 8x10 cabinet. Yet apart from the distinctive black vinyl covering, metal corners, and white piping, the Micro-CL head and 2x10 cabinet are unique little beasts.

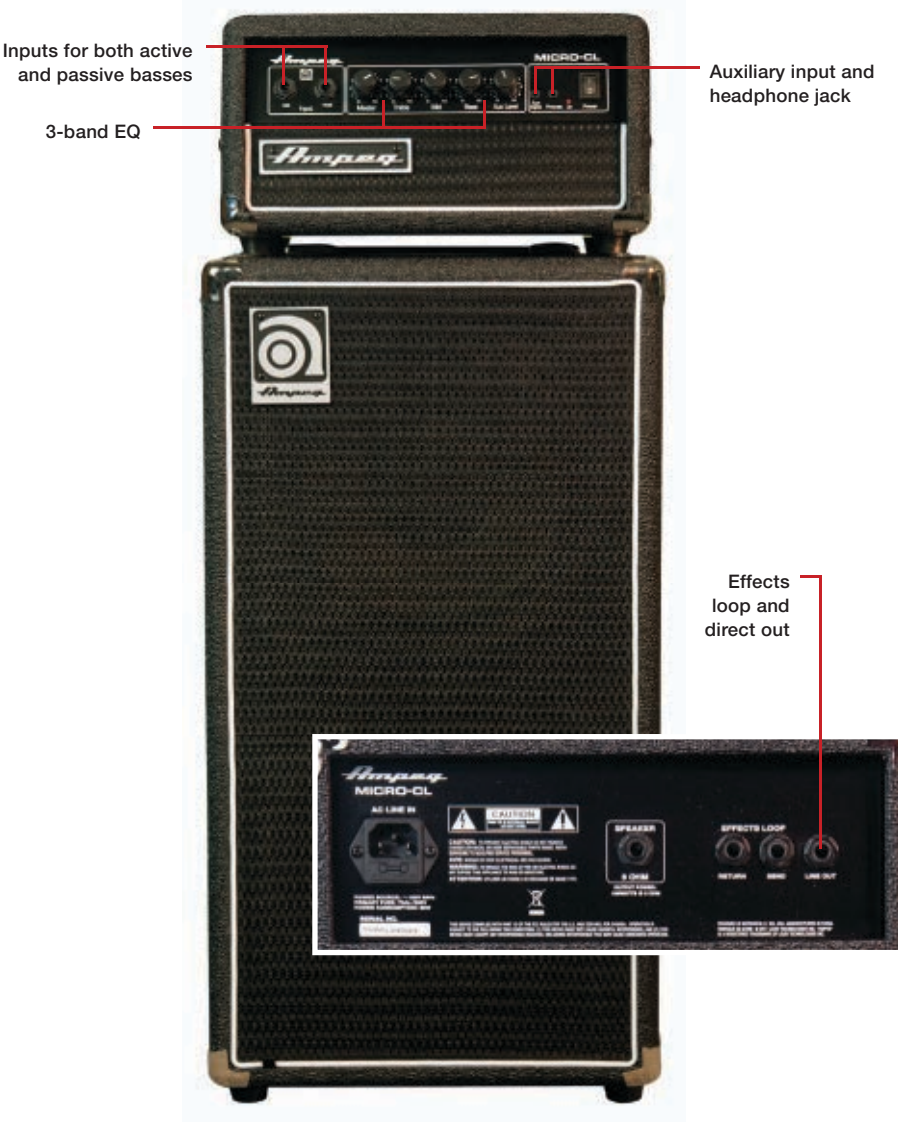
As expected, the head is pretty lightweight and small. At just about 14 pounds, it's a breeze to carry around. And the amp's adorable matching cab is just as lightweight and portable, clocking in at 33 pounds on a shipping scale. It's loaded with a pair of 50-watt, 10" Ampeg LF drivers for 100 watts of total handling capacity at 8 Ω.

A 100-watt solid-state power section dishes out the signal generated by the amp's solid-state preamp, which is shaped by a simple 3-band EQ and a single master volume control. There are separate inputs for passive and active basses, along with an 1/8" auxiliary input for plugging in an MP3 or CD player, and an 1/8" headphone jack located next to the power switch. On the back panel, a series effects loop with an unbalanced line out completes the amp's simple set of features.

Big Guns

Don't be fooled by the Micro-CL's tiny stature. This is one seriously powerful amplifier that I really had absolutely no expectation to be so. In fact, at higher volumes the amp's generous output level sometimes strained the matching cabinet and even gave some of the larger bass cabs in my practice space a serious workout.

After plugging in a 1987 USA Kramer Striker bass, I turned up the volume to around 9 o'clock, set the EQ controls to noon, and delved into some simple, blues-based riffs. I immediately did a double take after plucking the first note. Not only was there plenty of volume for bedroom playing, but the tone also filled the room in a surprisingly 3-D way. There was plenty of thump available for most R&B and jazz


Inputs for both active and passive basses
3-band EQ
Auxiliary input and headphone jack
Effects loop and direct out
MICRO-CL

styles, along with some rockin' Geddy Lee-meets-Lemmy Kilmister mid-heavy tones for more in-your-face playing.

Most of the tones were pretty easy to dial up from the amp's EQ section, and a simple change from the Kramer's J-style pickup to its P-style pickup took the amp into completely new territory. I found the level of response from the Micro-CL to be pretty astonishing too. Rounding off the edges of the tone and blooming the mids when I played with my fingers, the amp delivered real snarl when a plectrum came into play.

So, the Micro-CL gets pretty exceptional tone at low volumes, but how does it hold up when pushing it to band practice levels? Extremely well, as a matter of fact, provided you don't count on the matching cabinet to handle the larger amounts of juice needed for loud practice sessions. There was a noticeable level of speaker distortion coming from the cab once I moved the volume past the 11 o'clock range, and pulling down the bass and midrange controls really didn't alleviate matters much. I was pretty curious to find out just how far I could push the head, so I moved it over to a vintage Ampeg Isovent 2x10 and 2x15 combo cab.

I understand the stack was obviously designed for playing in bedrooms and smaller, intimate gigs, but I found the head to be capable of filling larger rooms with rumbling bass and great clarity when needed—just by pairing it with a meatier cab. The amp roared with a nice, rounded high end that was perfect for slap-and-pop techniques, and bringing more bass in filled my large practice space with a hearty dose of subs. Since there was more handling capacity with the Isovent cab, I noticed a slightly raw edge on the midrange frequencies, but it wasn't unpleasant enough for it to be a major knock on the amp's tone. Moreover, I was just blown away by the fact that such a small amp packed enough juice to be heard over a drummer *and* push enough air for bar gigs.

RATINGS

Ampeg Micro-CL Stack, $349 street (sold as a package), ampeg.com

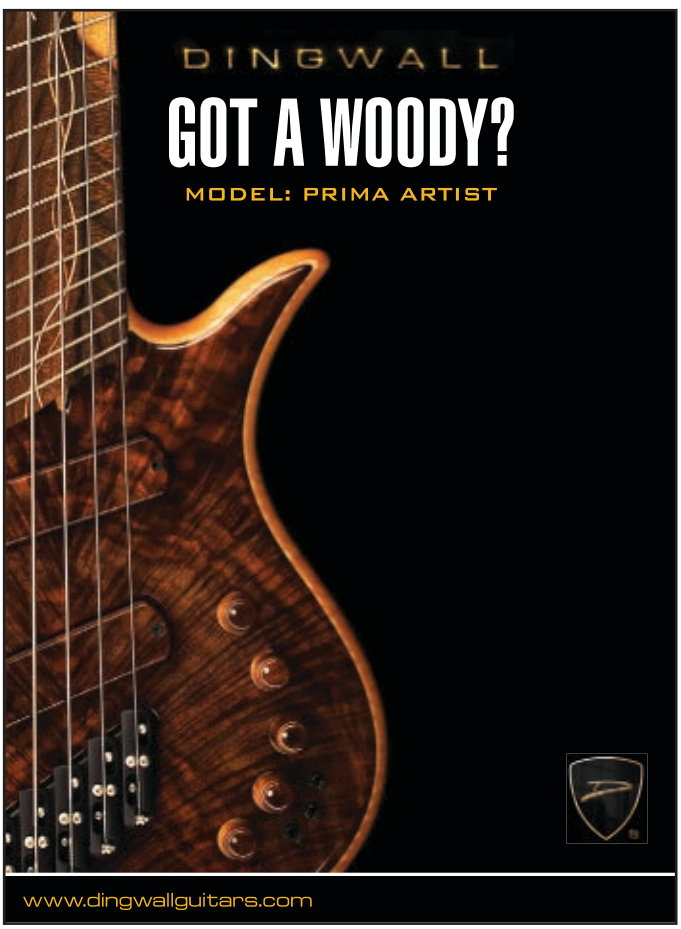
Pros: Full tone at low volumes and lots of volume available if the situation calls for it.

Cons: Matching cabinet can distort if too much power is applied.

Ampeg Micro-CL Amp		Ampeg Micro-CL Cab	
Tones	4	Tones	3½
Ease of Use	5	Versatility	3
Build	4½	Build	4½
Value	4½	Value	3½

The Verdict

The Micro-CL Stack is not just a great rig for bedroom jamming and smaller gigs, the amp is also a great choice for full band jam sessions and bigger gigs when hooked up to a cab that can handle larger amounts of volume. For the price, this package is a sweet setup for multiple applications, be it laying down scratch tracks quickly, fleshing out song ideas, or learning new tunes on the fly.



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GUILFORD GUITARS
U.S. Air Force Redeemer

BY CHRIS KIES

The United Service Organizations (USO) began its star treatment for U.S. troops during World War II, when Bob Hope took the stage at March Air Force Base in Riverside, California, on May 6, 1941. Since then, celebrities—from musicians like the Zac Brown Band and Toby Keith to comedians and actors such as Stephen Colbert and Jon Stewart—have entertained and participated in thousands of USO shows across the globe. The aim is to lift troop morale through laughter and song, regardless of the political affiliation of the star. But for Lillian Axe lead guitarist Steve Blaze, it went further than that.

"I've always had a great appreciation for our military at all levels—from the guys at the desks to the guys in the field—for what they've done for this country," says Blaze. "When my friend Major Henry C. Cecil asked me if I thought it'd be a good idea to get luthier John Guilford to build a guitar to benefit the U.S. Air Force … [*laughs*] before he could even finish his sentence, I said, 'Yes!'"

On April 27, 2011, nine members of the NATO Air Training Command – Afghanistan (NATC–A) were killed in action while serving as advisors and mentors to members of Afghanistan's military. Their mission was to train Afghan Air Force (AAF) personnel to become an independent and operationally capable unit that would provide security for Afghanistan once U.S. forces left.

In 2010, Maj. Cecil served in Afghanistan with the men and women who were killed. He knew three of them very closely and roomed with Capt. Nathan Nylander during the last few weeks that he was in Kabul. Losing his comrades had a huge impact on Cecil, and it inspired him to raise money for their families through the Air Advisor Memorial (airadvisormemorial.org).

Luthier John Guilford, alum of the Guitar Institute of Technology, was eager for the chance to participate. "Henry contacted me with his concept for a guitar, and his story flat-out touched my heart," he says. "I was honored that he and Steve thought enough of my abilities as a builder. I wanted to help in any way possible to help them honor the fallen service men and women."

The USAF Redeemer guitar that Guilford built in their honor features a bound, poplar body covered with United States Air Force camouflage, and it's finished in gloss nitrocellulose. The 25 1/2"-scale instrument has a 22-fret, quartersawn rock-maple neck and an ebony fretboard that has the words "U.S. Air Force" inlaid in mother-of-pearl. It also features the Buzz Feiten tuning system, an original Floyd Rose tremolo, Gotoh Mini 510 tuners, and Seymour Duncan Blackouts—a Metal model in the bridge and a Standard model in the neck position.

The guitar's back is engraved with the nine soldiers' names—Lt. Col. Frank D. Bryant Jr., Maj. Philip D. Ambard, Maj. Jeffrey O. Ausborn, Maj. David L. Brodeur, Maj. Raymond G. Estelle, Maj. Charles A. Ransom, Capt. Nathan J. Nylander, retired Lt. Col. James McLaughlin and Master Sgt. Tara R. Brown—on a 5-ply plaque made of pickguard material.

Since acquiring the guitar from Guilford after it was unveiled at the Dallas International Guitar Show, Blaze has played it during every performance of "Take the Bullet"—a song he wrote and dedicated to the military in 2010. The guitar will be raffled off on Veterans Day (November 11, 2012), with all funds going to the fallen service members' families.

"I don't have much, but what I do have is owed to the servicemen and women who have provided me that opportunity," reflects Guilford. "I feel blessed to have a chance to give back a small token of my appreciation through my craft. Hopefully, it'll help raise some money for the families and children who lost their mother or father, and the guitar should create music to celebrate the freedom we enjoy every day."

A special thanks to Maj. Henry C. Cecil, John Guilford, and Steve Blaze for the opportunity to feature this fine piece of gear and its story.

Got some gear that would make a great Gear of the Month? Then email pics and its story to us at gotm@premierguitar.com.

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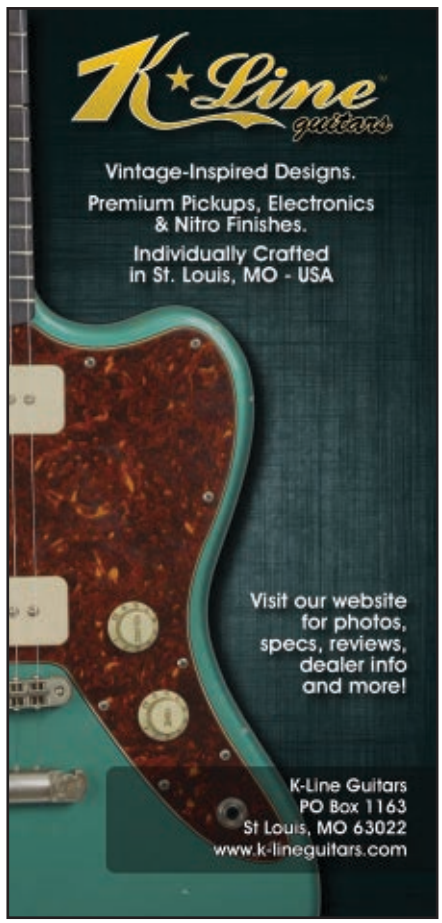

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Frank Hartung Guitars

BY RICH OSWEILER

Frank Hartung considers his work a calling more than an occupation. He first became attracted to the world of lutherie because of the dissatisfaction he experienced with an expensive guitar made by a large, American company. The issues this guitar had were intriguing, and forced him to deal with materials and construction details and how they relate to each other. Eventually, this led Hartung down the road to building his first guitar.

It was a success for a few reasons: his vocational training as a carpenter, experience with the particularities of woods, and some valuable advice from fellow German luthier Ulrich Teuffel. Hartung quickly drew the attention of experts and musicians who encouraged him to continue building. While the budding luthier appreciated the accolades, it was the satisfaction of building with his own hands that inspired him the most, and he went on to craft instruments on a part-time basis for several years under the name of Forge Guitars. Over time, the awareness of his guitars increased and the orders piled up—so much that he quit his day job to become a full-time luthier under his own name, Frank Hartung Guitars.

Hartung cites Teuffel as the builder who inspired him to become a luthier himself, but when asked what builder or manufacturer has had the most influence on his designs, Hartung maintains that no one did. "I never intended to copy anyone's style," he

>>> Enigma Scratchburst

This 25"-scale Enigma model finished in scratchburst brown utilizes mahogany for the construction of both the neck and body. With dramatically figured quilted maple used for the top wood, the ebony fretboard boasts a minimalist approach for its inlay work. With a Tune-o-matic string-through-body bridge and Schaller locking tuners, a pair of Ray Gerold custom pickups round out the features of the Enigma Scratchburst.

<<< Embrace Hollowwood Deluxe

The Embrace Hollowwood Deluxe is a virtual treasure trove of top-quality tonewoods. Boasting exhibition-grade quilted maple atop a Honduras mahogany body, the neck is constructed from a single piece of Brazilian rosewood and is capped with a snakewood fretboard. For electronics, the Embrace Hollowwood Deluxe is outfitted with a pair of Ray Gerold Custom Shop pickups.

>>> Glowing Moon

Appropriately named, Hartung's custom Glowing Moon guitar glows via the 32 toggle-switch-controllable LEDs located in the aluminum ring outlining the instrument's body. Utilizing ash for the body, it's stained with a "used violin brown" finish and the flamed-maple neck is topped with an inlay–rich, rosewood fretboard. For electronics, the Glowing Moon is outfitted with a Häussel Hot Special B in the bridge, a Häussel HB Blade in the middle position, and a Sustainiac Stealth Pro in the neck.

says. "Instead, I always wanted to realize my very own designs and establish them in the market. My guitars are supposed to look and sound distinctive and comparable to none. I think things have turned out quite well."

One creation that sets Hartung apart is his unique "Flow Carving" design which he developed in 2002 and uses on many of his instruments. With contour lines running fluently into the surface of the body as if two top planks are melting into each other, Flow Carving is what gives the bodies their 3-D appearance. "With my Flow Carving design, I have found my own aesthetic style, which is distinctive yet full of character," he says.

Hartung's twin brother Andi occasionally assists with paint jobs, but Frank Hartung Guitars is truly a one-man shop and the luthier believes there are many advantages to working in this manner. "I can do my work very precisely, with the utmost flexibility for my customers and with the highest quality standards possible," he says. "I closely collaborate with my customers and we discuss every detail and create drafts during the run-up." Later, he'll send pictures of the designated woods to the customer and they'll decide together how everything will be done. "Having close contact to my customers is something I really like," he explains. "All the feedback flows into new projects, which makes this part of building very exciting for me."

hartung-guitars.com

Pricing and Availability

Hartung's guitars start at approximately $4,000, but depending on choice of woods and specifications, the sky is the limit and prices can reach upwards of $10,000. Currently, Hartung builds 30 to 35 instruments per year with an average wait currently at 8 to 12 months. "Most customers are well aware of the waiting time and don't mind it," shares Hartung. "The joy of anticipation grows each day and I contribute to it by sending them pictures of their guitar's status throughout the process."

<<< Diavolo Glacierblue

The Diavolo Glacierblue features a distinctive ace of hearts playing card inlay adorning the otherwise understated, ebony fretboard. Utilizing cedro for the guitar's body, it's topped with highly-figured quilted maple and finished in glacier blue. This version of Hartung's Diavolo is loaded up with dual Steve Stevens Rebel Yell signature humbuckers from Bare Knuckle Pickups.

>>> Caligo

With a nod to futuristic minimalism, Hartung's new Caligo series of guitars defines the combination of art and lutherie. Employing ebony for both the fretboard and fixed bridge, Hartung chose red alder to construct the bodies and curly maple for the necks. Outfitted with Caligo Special humbuckers, the distinctive upper horn is up to the customer with a choice of both wood and finish.

<<< LP Special Custom

Mother-of-pearl crown inlays adorn the Brazilian rosewood fretboard of the LP Special Custom. Not stopping with the fretboard, Hartung also constructed the neck from Brazilian rosewood for this custom-made Les Paul-style guitar. Tigerburst-finished curly maple tops the mahogany body, which is equipped with a set of Ray Gerold Custom Shop humbuckers.

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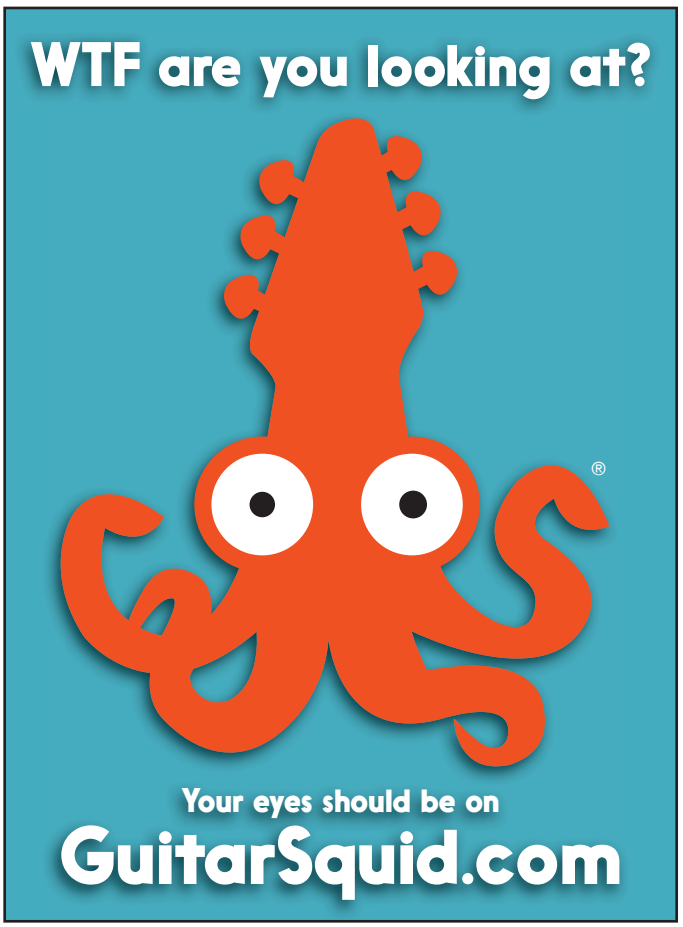

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PG EDITOR FOR A DAY WINNERS!

ΛΛΛ *Premier Guitar* Editor for a Day winners, Mason Stoops and Lindsey Hastings pose in front of the *PG* booth at the Summer NAMM Show in Nashville.

"I figured that I would find my way to Nashville one day, but it was not a priority. If it weren't for winning this contest, I wouldn't have known what I was missing. Nashville has been everything that I wanted to see and hear, but 1000 times more awesome."

Mason Stoops,
PG Editor for a Day Winner

CLICKHere...

to read about Mason and Lindsey's experience at Summer NAMM and **five products** that stuck out to Mason from the show.

NEXT MONTH IN PREMIER Guitar

THE PEDAL ISSUE: 2012 EDITION

It's back! Our biggest and most-anticipated coverage of the year features more than 30—yes, that's right—reviews of both boutique and mainstream guitar and bass pedals spanning the sonic gamut. Then we bring you pics and info on our Top 10 artist pedals of all-time, from Jimi's Fuzz Face to the Edge's Electro-Harmonix Deluxe Memory Man. Brian Wampler of Wampler Pedals also serves up killer DIY mods for Tube Screamers and more. And this issue wouldn't be complete without an in-depth profile of the crew at EarthQuaker Devices—one of the most adventurous stompbox outfits on the scene today.

MARCUS MILLER

Miller talks about laying down the low-end alongside greats like Miles Davis and Herbie Hancock, as well as life as a member of the bass supergroup SMV and how it all prepared him for his latest solo opus, *Marcus*.

ALEKS SEVER

With the release of *Danger Girl*, Sever is fast earning the praise of heavyweights like Steve Vai and Lee Ritenour for her tasteful and dazzlingly articulated blues-rock.

DAGMAR CUSTOM GUITARS

Canadian luthier Pete Swanson shares how transforming an antique 1960s bike into a hot-rodded specimen with fenders as a one-of-a-kind gift for his daughter's 16th birthday led to his budding career in guitar design.

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TAPE VS. PRO TOOLS BY JOHN BOHLINGER

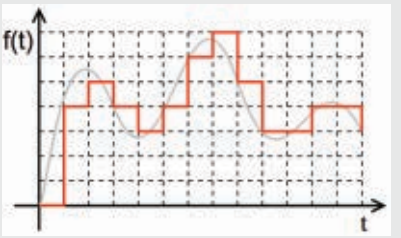
Over beer and cheap Mexican food with Masa Fukudome, a Grammy-winning engineer and musical partner-in-crime, the conversation turned to tape-versus-digital, a topic as interesting as watching paint dry. Masa is so old-school that his email address contains "longliveanalog." Analog is warmer, bigger, more musical ... blah, blah, blah. I've heard it all and I'm telling you, the horseless carriage gets you where you want to go quicker. Computers work fast and they're accurate, clean, quiet, and cheap. Tape lacks all of these qualities. However, Masa made an interesting point that forced me to rethink recording: He argued that tape machines don't work better, musicians work better with tape.

Before I reveal Fukudome's theory of recording, let's review the differences: In theory, analog should sound better. Drop a pencil on the floor right now. That *click-ick-ick-ick* you hear is one continuous sound wave. Digital, by virtue of its nature, contains breaks for each sonic change, be it pitch, volume, or whatever.

Jonathan Strickland, a senior tech writer at HowStuffWorks, explains the consequences of chopping up a sound wave like this: "Some audiophiles argue that because analog recording methods are continuous, they are better at capturing a true representation of sound. Digital recordings can miss subtle nuances."

However, digital technology improves every year as digital devices use higher sampling rates. Although I don't have the science to back it up, I think of digital recording a bit like a TV or video screen. Enlarge a TV or video image and you'll see that images are actually composed of dots or pixels, yet our brain is able to fill in the missing parts. A digital recording of a sine wave may not look like its analog cousin, but our brains fill in what's missing. Unless a recording is truly terrible, most of us focus on the music, not on the subtleties of sound recording.

For most of us, the quality of a recording doesn't matter because we listen with bad gear. About 90 percent of my music listening takes place in the worst possible environment: the stock radio in my 1994 Mercury or MP3s and YouTube videos blasting from my laptop computer's cheap speakers. It must not sound *that* bad because I listen to music all the time.



As illustrated by the smooth gray line, a sound wave is a continuous, unbroken event. In digital audio, sounds are sampled at various points, as shown by the red line. These samples are used to create a representation of the original wave.

So, if digital is easier and cheaper and few of us can tell the difference, why does Masa Fukudome argue that analog remains the better way to record? *Because musicians are more focused and involved when working with tape.*

About seven years ago, I was recording to tape at Bayou Studio in Nashville doing some made-to-order tracks for a TV show. The producers specified that one section needed to contain 13 hits spaced roughly one second apart to correspond with a montage of 13 still photos. For some reason, our bass player—who will remain anonymous—had a difficult time playing it. After about five takes, he asked, "Can't you just fly in part of it?" To which the engineer replied, "Sorry boys, you've got to be able to play to record here." We all got a good laugh over this quip, but secretly marveled that musicians have devolved to the point where playing well isn't necessarily required.

Back in the days of magnetizing rather than encoding, we would rehearse, then track. Once we got a good take, everyone would pile into the control room and quietly listen while making copious notes on our charts. We would talk over arrangement ideas, and then track and re-track as a band until we had a great ensemble performance that was basically done. We would then add overdubs and do any fixes. Because punching in and out with tape lacks the surgical precision of Pro Tools, solos were more likely a performance then a composite of lots of little licks and phrases.

These days, I do most of my recordings alone, playing to drum loops and building tracks. When I do a band session, the process is completely relaxed. We talk it through, make suggestions, blow down a decent take, and then everyone schleps into the control room for the playback. But nobody really listens like they used to. Rather than focusing on what they played, people talk about movies or the industry. If something isn't right, the engineer can probably fix it. For solos and fills, I find myself compiling the best of three or four takes. Although this method cuts out all the wrong notes, it doesn't make for a cohesive part. We get more ear candy, less flowing melody.

Last night I listened to the Stones' *Sticky Fingers*, a quintessential example of a band cutting live to tape. Hearing this album was like watching a cat fall off a roof, awkwardly spinning upside down, then at the last moment landing on its feet without a scratch. The Stones would speed up, slow down, and careen dangerously around the beat, but they all grooved together. It felt like rock 'n' roll. In Keith Richards' autobiography, *Life*, he described their torturously long recording sessions, cutting take after take all night until it felt right. I don't know if musicians who were raised recording in the digital world could have that same work ethic.

The analog generation knew how to make music. What you heard on record was actually played by real people. The gear they used for recording doesn't really matter. I think that may be why Joe Walsh titled his new album *Analog Man*. I use to think analog guys were silly, preachy, and perhaps delusional, but ultimately, I get it now. Digital audio not only breaks for each musical change, digital recordings tend to be a compilation of many tiny performances that are manipulated and flown around a grid. Analog captures continuous sound—a performance committed to tape. Musicians commit to their sounds and parts, rather than getting them close enough that an engineer can make them perfect.

Perhaps the most pragmatic approach would be to combine the spirit of analog with the efficiency of digital—capture a committed performance with a clean digital system. Let's settle for that because none of the studios I use today still have a functioning 2" tape machine or remember how to use it.

JOHN BOHLINGER
John Bohlinger is a Nashville multi-instrumentalist best known for his work in television. He led the band for all six seasons of NBC's hit program Nashville Star, *as well as the 2011, 2010, and 2009 CMT Music Awards and many specials for GAC, PBS, CMT, USA, and HDTV. Check out his performances on YouTube.*

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